

**Index of papers published in the  
IEEE Robotics and Automation Letters  
and presented at  
IEEE International Conference on Robotics and Automation 2020 (ICRA 2020)**

In order of publication

**Model-Based Robotic Cell Aspiration: Tackling Nonlinear Dynamics and Varying Cell Sizes**

G. Shan; Z. Zhang; C. Dai; X. Wang; L. Chu; Y. Sun  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 1  
Pages:173-178, DOI: [10.1109/LRA.2019.2952998](https://doi.org/10.1109/LRA.2019.2952998)

**Depth Based Semantic Scene Completion With Position Importance Aware Loss**

J. Li; Y. Liu; X. Yuan; C. Zhao; R. Siegwart; I. Reid; C. Cadena  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 1  
Pages:219-226, DOI: [10.1109/LRA.2019.2953639](https://doi.org/10.1109/LRA.2019.2953639)

**Voxgraph: Globally Consistent, Volumetric Mapping Using Signed Distance Function Submaps**

V. Reijgwart; A. Millane; H. Oleynikova; R. Siegwart; C. Cadena; J. Nieto  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 1  
Pages:227-234, DOI: [10.1109/LRA.2019.2953859](https://doi.org/10.1109/LRA.2019.2953859)

**A Study on Sparse Hierarchical Inverse Kinematics Algorithms for Humanoid Robots**

E. M. Hoffman; M. P. Polverini; A. Laurenzi; N. G. Tsagarakis  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 1  
Pages:235-242, DOI: [10.1109/LRA.2019.2954820](https://doi.org/10.1109/LRA.2019.2954820)

**Robust Autonomous Navigation of Unmanned Aerial Vehicles (UAVs) for Warehouses' Inventory Application**

W. Kwon; J. H. Park; M. Lee; J. Her; S. Kim; J. Seo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 1  
Pages:243-249, DOI: [10.1109/LRA.2019.2955003](https://doi.org/10.1109/LRA.2019.2955003)

**Generative Localization With Uncertainty Estimation Through Video-CT Data for Bronchoscopic Biopsy**

C. Zhao; M. Shen; L. Sun; G. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 1  
Pages:258-265, DOI: [10.1109/LRA.2019.2955941](https://doi.org/10.1109/LRA.2019.2955941)

**Towards Variable Assistance for Lower Body Exoskeletons**

T. Gurriet; M. Tucker; A. Duburcq; G. Boeris; A. D. Ames

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 1

Pages:266-273, DOI: [10.1109/LRA.2019.2955946](https://doi.org/10.1109/LRA.2019.2955946)

**Task Space Motion Control for AFM-Based Nanorobot Using Optimal and Ultralimit Archimedean Spiral Local Scan**

Z. Sun; N. Xi; Y. Xue; Y. Cheng; L. Chen; R. Yang; B. Song

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:282-289, DOI: [10.1109/LRA.2019.2955942](https://doi.org/10.1109/LRA.2019.2955942)

**Control Oriented Modeling of Soft Robots: The Polynomial Curvature Case**

C. D. Santina; D. Rus

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:290-298, DOI: [10.1109/LRA.2019.2955936](https://doi.org/10.1109/LRA.2019.2955936)

**Analysis of Minima for Geodesic and Chordal Cost for a Minimal 2-D Pose-Graph SLAM Problem**

F. H. Kong; J. Zhao; L. Zhao; S. Huang

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:323-330, DOI: [10.1109/LRA.2019.2958492](https://doi.org/10.1109/LRA.2019.2958492)

**Direct Force Feedback Control and Online Multi-Task Optimization for Aerial Manipulators**

G. Nava; Q. Sablé; M. Tognon; D. Pucci; A. Franchi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:331-338, DOI: [10.1109/LRA.2019.2958473](https://doi.org/10.1109/LRA.2019.2958473)

**Design and Control of a Piezo Drill for Robotic Piezo-Driven Cell Penetration**

C. Dai; L. Xin; Z. Zhang; G. Shan; T. Wang; K. Zhang; X. Wang; L. Chu; C. Ru; Y. Sun

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:339-345, DOI: [10.1109/LRA.2019.2958734](https://doi.org/10.1109/LRA.2019.2958734)

**Motion Planning Explorer: Visualizing Local Minima Using a Local-Minima Tree**

A. Orthey; B. Frész; M. Toussaint

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:346-353, DOI: [10.1109/LRA.2019.2958524](https://doi.org/10.1109/LRA.2019.2958524)

**Single-Hydrophone Low-Cost Underwater Vehicle Swarming**

E. M. Fischell; A. R. Kroo; B. W. O'Neill

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:354-361, DOI: [10.1109/LRA.2019.2958774](https://doi.org/10.1109/LRA.2019.2958774)

**Dispertio: Optimal Sampling For Safe Deterministic Motion Planning**

L. Palmieri; L. Bruns; M. Meurer; K. O. Arras  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:362-368, DOI: [10.1109/LRA.2019.2958525](https://doi.org/10.1109/LRA.2019.2958525)

**A Teleoperation Framework for Mobile Robots Based on Shared Control**

J. Luo; Z. Lin; Y. Li; C. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:377-384, DOI: [10.1109/LRA.2019.2959442](https://doi.org/10.1109/LRA.2019.2959442)

**Improving Visual Feature Extraction in Glacial Environments**

S. D. Morad; J. Nash; S. Higa; R. Smith; A. Parness; K. Barnard  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:385-390, DOI: [10.1109/LRA.2019.2959490](https://doi.org/10.1109/LRA.2019.2959490)

**OriNet: Robust 3-D Orientation Estimation With a Single Particular IMU**

M. A. Esfahani; H. Wang; K. Wu; S. Yuan  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:399-406, DOI: [10.1109/LRA.2019.2959507](https://doi.org/10.1109/LRA.2019.2959507)

**Addressing the Sim2Real Gap in Robotic 3-D Object Classification**

J. Weibel; T. Patten; M. Vincze  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:407-413, DOI: [10.1109/LRA.2019.2959497](https://doi.org/10.1109/LRA.2019.2959497)

**Vid2Param: Modeling of Dynamics Parameters From Video**

M. Asenov; M. Burke; D. Angelov; T. Davchev; K. Subr; S. Ramamoorthy  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:414-421, DOI: [10.1109/LRA.2019.2959476](https://doi.org/10.1109/LRA.2019.2959476)

**Visual-Inertial Mapping With Non-Linear Factor Recovery**

V. Usenko; N. Demmel; D. Schubert; J. Stückler; D. Cremers  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:422-429, DOI: [10.1109/LRA.2019.2961227](https://doi.org/10.1109/LRA.2019.2961227)

**Optimal Perimeter Guarding With Heterogeneous Robot Teams: Complexity Analysis and Effective Algorithms**

S. W. Feng; J. Yu  
IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:430-437, DOI: [10.1109/LRA.2019.2961302](https://doi.org/10.1109/LRA.2019.2961302)

**When Your Robot Breaks: Active Learning During Plant Failure**

M. L. Schrum; M. C. Gombolay  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:438-445, DOI: [10.1109/LRA.2019.2961598](https://doi.org/10.1109/LRA.2019.2961598)

**Toward Fast and Optimal Robotic Pick-and-Place on a Moving Conveyor**

S. D. Han; S. W. Feng; J. Yu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:446-453, DOI: [10.1109/LRA.2019.2961605](https://doi.org/10.1109/LRA.2019.2961605)

**Multi Directional Piezoelectric Plate Energy Harvesters Designed By Topology Optimization Algorithm**

A. Homayouni-Amlashi; A. Mohand-Ousaid; M. Rakotondrabe  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:462-469, DOI: [10.1109/LRA.2019.2962367](https://doi.org/10.1109/LRA.2019.2962367)

**Multi-Sensor Mapping for Low Contrast, Quasi-Dynamic, Large Objects**

V. Shah; K. Schild; M. Lindeman; D. Duncan; D. Sutherland; C. Cenedese; F. Straneo; H. Singh  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:470-476, DOI: [10.1109/LRA.2019.2962357](https://doi.org/10.1109/LRA.2019.2962357)

**iART: Learning From Demonstration for Assisted Robotic Therapy Using LSTM**

S. Pareek; T. Kesavadas  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:477-484, DOI: [10.1109/LRA.2019.2961845](https://doi.org/10.1109/LRA.2019.2961845)

**Novel Model-Based Control Mixing Strategy for a Coaxial Push-Pull Multirotor**

J. Chebbi; F. Defaÿ; Y. Brière; A. Deruaz-Pepin  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:485-491, DOI: [10.1109/LRA.2019.2963652](https://doi.org/10.1109/LRA.2019.2963652)

**Self-Supervised Correspondence in Visuomotor Policy Learning**

P. Florence; L. Manuelli; R. Tedrake  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:492-499, DOI: [10.1109/LRA.2019.2956365](https://doi.org/10.1109/LRA.2019.2956365)

**Robust Path Following of the Tractor-Trailers System in GPS-Denied Environments**

S. Zhou; H. Zhao; W. Chen; Z. Miao; Z. Liu; H. Wang; Y. Liu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:500-507, DOI: [10.1109/LRA.2019.2956380](https://doi.org/10.1109/LRA.2019.2956380)

**An Augmented Kinematic Model for the Cartesian Control of the Hybrid Wheeled-Legged Quadrupedal Robot CENTAURO**

A. Laurenzi; E. M. Hoffman; M. P. Polverini; N. G. Tsagarakis  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:508-515, DOI: [10.1109/LRA.2019.2961846](https://doi.org/10.1109/LRA.2019.2961846)

**Whole-Body Motion Tracking for a Quadruped-on-Wheel Robot via a Compact-Form Controller With Improved Prioritized Optimization**

W. Du; M. Fnadi; F. Benamar  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:516-523, DOI: [10.1109/LRA.2019.2963822](https://doi.org/10.1109/LRA.2019.2963822)

**Virtual Fixture Assistance for Suturing in Robot-Aided Pediatric Endoscopic Surgery**

M. M. Marinho; H. Ishida; K. Harada; K. Deie; M. Mitsuishi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:524-531, DOI: [10.1109/LRA.2019.2963642](https://doi.org/10.1109/LRA.2019.2963642)

**A Multimodal Target-Source Classifier With Attention Branches to Understand Ambiguous Instructions for Fetching Daily Objects**

A. Magassouba; K. Sugiura; H. Kawai  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:532-539, DOI: [10.1109/LRA.2019.2963649](https://doi.org/10.1109/LRA.2019.2963649)

**Design and Prototyping of a Bio-Inspired Kinematic Sensing Suit for the Shoulder Joint: Precursor to a Multi-DoF Shoulder Exosuit**

R. J. Varghese; B. P. L. Lo; G. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:540-547, DOI: [10.1109/LRA.2019.2963636](https://doi.org/10.1109/LRA.2019.2963636)

**MapLite: Autonomous Intersection Navigation Without a Detailed Prior Map**

T. Ort; K. Murthy; R. Banerjee; S. K. Gottipati; D. Bhatt; I. Gilitschenski; L. Paull; D. Rus  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:556-563, DOI: [10.1109/LRA.2019.2961051](https://doi.org/10.1109/LRA.2019.2961051)

**Drive-Based Vibration Damping Control for Robot Machining**

P. Mesmer; M. Neubauer; A. Lechler; A. Verl

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:564-571, DOI: [10.1109/LRA.2019.2960723](https://doi.org/10.1109/LRA.2019.2960723)

**Experimental Comparison of Decentralized Task Allocation Algorithms Under Imperfect Communication**

S. Nayak; S. Yeotikar; E. Carrillo; E. Rudnick-Cohen; M. K. M. Jaffar; R. Patel; S. Azarm; J. W. Herrmann; H. Xu; M. Otte  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:572-579, DOI: [10.1109/LRA.2019.2963646](https://doi.org/10.1109/LRA.2019.2963646)

**Relocalization With Submaps: Multi-Session Mapping for Planetary Rovers Equipped With Stereo Cameras**

R. Giubilato; M. Vayugundla; M. J. Schuster; W. Stürzl; A. Wedler; R. Triebel; S. Debei  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:580-587, DOI: [10.1109/LRA.2020.2964157](https://doi.org/10.1109/LRA.2020.2964157)

**Boosting Real-Time Driving Scene Parsing With Shared Semantics**

Z. Xiang; A. Bao; J. Li; J. Su  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:596-603, DOI: [10.1109/LRA.2020.2965075](https://doi.org/10.1109/LRA.2020.2965075)

**Online Trajectory Generation With Distributed Model Predictive Control for Multi-Robot Motion Planning**

C. E. Luis; M. Vukosavljev; A. P. Schoellig  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:604-611, DOI: [10.1109/LRA.2020.2964159](https://doi.org/10.1109/LRA.2020.2964159)

**SLOAM: Semantic Lidar Odometry and Mapping for Forest Inventory**

S. W. Chen; G. V. Nardari; E. S. Lee; C. Qu; X. Liu; R. A. F. Romero; V. Kumar  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:612-619, DOI: [10.1109/LRA.2019.2963823](https://doi.org/10.1109/LRA.2019.2963823)

**Direct Visual Servoing in the Frequency Domain**

E. Marchand  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:620-627, DOI: [10.1109/LRA.2020.2965027](https://doi.org/10.1109/LRA.2020.2965027)

**Hierarchical Stochastic Optimization With Application to Parameter Tuning for Electronically Controlled Transmissions**

H. Karasawa; T. Kanemaki; K. Oomae; R. Fukui; M. Nakao; T. Osa  
IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:628-635, DOI: [10.1109/LRA.2020.2965085](https://doi.org/10.1109/LRA.2020.2965085)

### **Design and Control of a Variable Aerial Cable Towed System**

Z. Li; J. Erskine; S. Caro; A. Chriette  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:636-643, DOI: [10.1109/LRA.2020.2964165](https://doi.org/10.1109/LRA.2020.2964165)

### **A Minimally Actuated Reconfigurable Continuous Track Robot**

T. Kislasi; D. Zarrouk  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:652-659, DOI: [10.1109/LRA.2019.2959237](https://doi.org/10.1109/LRA.2019.2959237)

### **Cooperative Visual-Inertial Odometry: Analysis of Singularities, Degeneracies and Minimal Cases**

A. Martinelli  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:668-675, DOI: [10.1109/LRA.2020.2965063](https://doi.org/10.1109/LRA.2020.2965063)

### **THÖR: Human-Robot Navigation Data Collection and Accurate Motion Trajectories Dataset**

A. Rudenko; T. P. Kucner; C. S. Swaminathan; R. T. Chadalavada; K. O. Arras; A. J. Lilienthal  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:676-682, DOI: [10.1109/LRA.2020.2965416](https://doi.org/10.1109/LRA.2020.2965416)

### **Constrained-Space Optimization and Reinforcement Learning for Complex Tasks**

Y. Tsai; B. Xiao; E. Johns; G. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:683-690, DOI: [10.1109/LRA.2020.2965392](https://doi.org/10.1109/LRA.2020.2965392)

### **May I Draw Your Attention? Initial Lessons From the Large-Scale Generative Mark Maker**

A. Phillips; A. Vinoo; N. T. Fitter  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:691-698, DOI: [10.1109/LRA.2020.2964167](https://doi.org/10.1109/LRA.2020.2964167)

### **SIMPA: Soft-Grasp Infant Myoelectric Prosthetic Arm**

D. De Barrie; R. Margetts; K. Goher  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:699-704, DOI: [10.1109/LRA.2019.2963820](https://doi.org/10.1109/LRA.2019.2963820)

**The ARMM System - Autonomous Steering of Magnetically-Actuated Catheters: Towards Endovascular Applications**

C. M. Heunis; Y. P. Wotte; J. Sikorski; G. P. Furtado; S. Misra

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:705-712, DOI: [10.1109/LRA.2020.2965077](https://doi.org/10.1109/LRA.2020.2965077)

**Interactive Gibson Benchmark: A Benchmark for Interactive Navigation in Cluttered Environments**

F. Xia; W. B. Shen; C. Li; P. Kasimbeg; M. E. Tchapmi; A. Toshev; R. Martín-Martín; S. Savarese

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:713-720, DOI: [10.1109/LRA.2020.2965078](https://doi.org/10.1109/LRA.2020.2965078)

**DeepFactors: Real-Time Probabilistic Dense Monocular SLAM**

J. Czarnowski; T. Laidlow; R. Clark; A. J. Davison

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:721-728, DOI: [10.1109/LRA.2020.2965415](https://doi.org/10.1109/LRA.2020.2965415)

**From Crowd Simulation to Robot Navigation in Crowds**

T. Fraichard; V. Levesy

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:729-735, DOI: [10.1109/LRA.2020.2965032](https://doi.org/10.1109/LRA.2020.2965032)

**A Dynamic Weighted Area Assignment Based on a Particle Filter for Active Cooperative Perception**

J. J. Acevedo; J. Messias; J. Capitán; R. Ventura; L. Merino; P. U. Lima

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:736-743, DOI: [10.1109/LRA.2020.2965876](https://doi.org/10.1109/LRA.2020.2965876)

**Task Space Control of Articulated Robot Near Kinematic Singularity: Forward Dynamics Approach**

D. Lee; W. Lee; J. Park; W. K. Chung

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:752-759, DOI: [10.1109/LRA.2020.2965071](https://doi.org/10.1109/LRA.2020.2965071)

**Improving Robotic Cooking Using Batch Bayesian Optimization**

K. Junge; J. Hughes; T. G. Thuruthel; F. Iida

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:760-765, DOI: [10.1109/LRA.2020.2965418](https://doi.org/10.1109/LRA.2020.2965418)

**Morphology-Agnostic Visual Robotic Control**

B. Yang; D. Jayaraman; G. Berseth; A. Efros; S. Levine  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:766-773, DOI: [10.1109/LRA.2019.2963824](https://doi.org/10.1109/LRA.2019.2963824)

**Action Description From 2D Human Postures in Care Facilities**

W. Takano; H. LEE  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:774-781, DOI: [10.1109/LRA.2020.2965394](https://doi.org/10.1109/LRA.2020.2965394)

**Multiple Sound Source Position Estimation by Drone Audition Based on Data Association Between Sound Source Localization and Identification**

M. Wakabayashi; H. G. Okuno; M. Kumon  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:782-789, DOI: [10.1109/LRA.2020.2965417](https://doi.org/10.1109/LRA.2020.2965417)

**Cooperative Aerial-Ground Multi-Robot System for Automated Construction Tasks**

M. Krizmancic; B. Arbanas; T. Petrovic; F. Petric; S. Bogdan  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:798-805, DOI: [10.1109/LRA.2020.2965855](https://doi.org/10.1109/LRA.2020.2965855)

**Double-Modal Locomotion and Application of Soft Cruciform Thin-Film Microrobot**

M. Su; T. Xu; Z. Lai; C. Huang; J. Liu; X. Wu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:806-812, DOI: [10.1109/LRA.2020.2965912](https://doi.org/10.1109/LRA.2020.2965912)

**Polygon-Based Random Tree Search Planning for Variable Geometry Truss Robot**

S. Park; J. Bae; S. Lee; M. Yim; J. Kim; T. Seo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:813-819, DOI: [10.1109/LRA.2020.2965871](https://doi.org/10.1109/LRA.2020.2965871)

**Visual Servo of a 6-DOF Robotic Stereo Flexible Endoscope Based on da Vinci Research Kit (dVRK) System**

X. Ma; C. Song; P. W. Chiu; Z. Li  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:820-827, DOI: [10.1109/LRA.2020.2965863](https://doi.org/10.1109/LRA.2020.2965863)

**Offline Assistance Optimization of a Soft Exosuit for Augmenting Ankle Power of Stroke Survivors During Walking**

C. Siviyy; J. Bae; L. Baker; F. Porciuncula; T. Baker; T. D. Ellis; L. N. Awad; C. J.

Walsh  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:828-835, DOI: [10.1109/LRA.2020.2965072](https://doi.org/10.1109/LRA.2020.2965072)

**Object-Centric Task and Motion Planning in Dynamic Environments**

T. Migimatsu; J. Bohg  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:844-851, DOI: [10.1109/LRA.2020.2965875](https://doi.org/10.1109/LRA.2020.2965875)

**MinneApple: A Benchmark Dataset for Apple Detection and Segmentation**

N. Häni; P. Roy; V. Isler  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:852-858, DOI: [10.1109/LRA.2020.2965061](https://doi.org/10.1109/LRA.2020.2965061)

**Multi-Contact Heavy Object Pushing With a Centaur-Type Humanoid Robot: Planning and Control for a Real Demonstrator**

M. P. Polverini; A. Laurenzi; E. M. Hoffman; F. Ruscelli; N. G. Tsagarakis  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:859-866, DOI: [10.1109/LRA.2020.2965906](https://doi.org/10.1109/LRA.2020.2965906)

**Integration of Self-Sealing Suction Cups on the FLEXotendon Glove-II Robotic Exoskeleton System**

S. Jeong; P. Tran; J. P. Desai  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:867-874, DOI: [10.1109/LRA.2020.2965895](https://doi.org/10.1109/LRA.2020.2965895)

**Learning to Optimally Segment Point Clouds**

P. Hu; D. Held; D. Ramanan  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:875-882, DOI: [10.1109/LRA.2020.2965389](https://doi.org/10.1109/LRA.2020.2965389)

**GN-Net: The Gauss-Newton Loss for Multi-Weather Relocalization**

L. von Stumberg; P. Wenzel; Q. Khan; D. Cremers  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:890-897, DOI: [10.1109/LRA.2020.2965031](https://doi.org/10.1109/LRA.2020.2965031)

**Patient-Specific, Voice-Controlled, Robotic FLEXotendon Glove-II System for Spinal Cord Injury**

P. Tran; S. Jeong; S. L. Wolf; J. P. Desai  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:898-905, DOI: [10.1109/LRA.2020.2965900](https://doi.org/10.1109/LRA.2020.2965900)

**The Complex-Step Derivative Approximation on Matrix Lie Groups**

C. C. Cossette; A. Walsh; J. R. Forbes

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:906-913, DOI: [10.1109/LRA.2020.2965882](https://doi.org/10.1109/LRA.2020.2965882)

**Distal Hyperextension Is Handy: High Range of Motion in Cluttered Environments**

W. Ruotolo; R. Thomasson; J. Herrera; A. Gruebele; M. Cutkosky

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:921-928, DOI: [10.1109/LRA.2020.2965914](https://doi.org/10.1109/LRA.2020.2965914)

**Extrinsic Calibration of an Eye-In-Hand 2D LiDAR Sensor in Unstructured Environments Using ICP**

A. Peters; A. Schmidt; A. C. Knoll

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:929-936, DOI: [10.1109/LRA.2020.2965878](https://doi.org/10.1109/LRA.2020.2965878)

**Learning-Based Fingertip Force Estimation for Soft Wearable Hand Robot With Tendon-Sheath Mechanism**

B. B. Kang; D. Kim; H. Choi; U. Jeong; K. B. Kim; S. Jo; K. Cho

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:946-953, DOI: [10.1109/LRA.2020.2966391](https://doi.org/10.1109/LRA.2020.2966391)

**Observer-Extended Direct Method for Collision Monitoring in Robot Manipulators Using Proprioception and IMU Sensing**

S. A. B. Birjandi; J. Kühn; S. Haddadin

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:954-961, DOI: [10.1109/LRA.2020.2967287](https://doi.org/10.1109/LRA.2020.2967287)

**Real Time Trajectory Prediction Using Deep Conditional Generative Models**

S. Gomez-Gonzalez; S. Prokudin; B. Schölkopf; J. Peters

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:970-976, DOI: [10.1109/LRA.2020.2966390](https://doi.org/10.1109/LRA.2020.2966390)

**Cooperative Control of Heterogeneous Connected Vehicle Platoons: An Adaptive Leader-Following Approach**

J. Hu; P. Bhowmick; F. Arvin; A. Lanzon; B. Lennox

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:977-984, DOI: [10.1109/LRA.2020.2966412](https://doi.org/10.1109/LRA.2020.2966412)

**Coordinated Particle Relocation Using Finite Static Friction With Boundary**

### **Walls**

A. Schmidt; V. M. Baez; A. T. Becker; S. P. Fekete  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:985-992, DOI: [10.1109/LRA.2020.2967275](https://doi.org/10.1109/LRA.2020.2967275)

### **A Hybrid Compact Neural Architecture for Visual Place Recognition**

M. Chancán; L. Hernandez-Nunez; A. Narendra; A. B. Barron; M. Milford  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:993-1000, DOI: [10.1109/LRA.2020.2967324](https://doi.org/10.1109/LRA.2020.2967324)

### **An Adversarial Approach to Private Flocking in Mobile Robot Teams**

H. Zheng; J. Panerati; G. Beltrame; A. Prorok  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1009-1016, DOI: [10.1109/LRA.2020.2967331](https://doi.org/10.1109/LRA.2020.2967331)

### **Learning Densities in Feature Space for Reliable Segmentation of Indoor Scenes**

N. Marchal; C. Moraldo; H. Blum; R. Siegwart; C. Cadena; A. Gawel  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1032-1038, DOI: [10.1109/LRA.2020.2967313](https://doi.org/10.1109/LRA.2020.2967313)

### **Multimodal Multispectral Imaging System for Small UAVs**

T. V. Haavardsholm; T. Skauli; A. Stahl  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1039-1046, DOI: [10.1109/LRA.2020.2967301](https://doi.org/10.1109/LRA.2020.2967301)

### **Aerial Single-View Depth Completion With Image-Guided Uncertainty Estimation**

L. Teixeira; M. R. Oswald; M. Pollefeys; M. Chli  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1055-1062, DOI: [10.1109/LRA.2020.2967296](https://doi.org/10.1109/LRA.2020.2967296)

### **Identification of the Propeller Coefficients and Dynamic Parameters of a Hovering Quadrotor From Flight Data**

D. Six; S. Briot; J. Erskine; A. Chriette  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1063-1070, DOI: [10.1109/LRA.2020.2966393](https://doi.org/10.1109/LRA.2020.2966393)

### **Cooperative Mapping and Target Search Over an Unknown Occupancy Graph Using Mutual Information**

A. Wolek; S. Cheng; D. Goswami; D. A. Paley  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2

Pages:1071-1078, DOI: [10.1109/LRA.2020.2966394](https://doi.org/10.1109/LRA.2020.2966394)

**Combining Domain Adaptation and Spatial Consistency for Unseen Fruits Counting: A Quasi-Unsupervised Approach**

E. Bellocchio; G. Costante; S. Cascianelli; M. L. Fravolini; P. Valigi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1079-1086, DOI: [10.1109/LRA.2020.2966398](https://doi.org/10.1109/LRA.2020.2966398)

**RSL-Net: Localising in Satellite Images From a Radar on the Ground**

T. Y. Tang; D. De Martini; D. Barnes; P. Newman

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1087-1094, DOI: [10.1109/LRA.2020.2965907](https://doi.org/10.1109/LRA.2020.2965907)

**Automatic Design of Compliant Surgical Forceps With Adaptive Grasping Functions**

Y. Sun; Y. Liu; L. Xu; Y. Zou; A. Faragasso; T. C. Lueth

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1095-1102, DOI: [10.1109/LRA.2020.2967715](https://doi.org/10.1109/LRA.2020.2967715)

**A Navigation Architecture for Ackermann Vehicles in Precision Farming**

R. F. Carpio; C. Potena; J. Maiolini; G. Ulivi; N. B. Rosselló; E. Garone; A. Gasparri

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1103-1110, DOI: [10.1109/LRA.2020.2967306](https://doi.org/10.1109/LRA.2020.2967306)

**Walk, Stop, Count, and Swap: Decentralized Multi-Agent Path Finding With Theoretical Guarantees**

H. Wang; M. Rubenstein

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1119-1126, DOI: [10.1109/LRA.2020.2967317](https://doi.org/10.1109/LRA.2020.2967317)

**Graduated Non-Convexity for Robust Spatial Perception: From Non-Minimal Solvers to Global Outlier Rejection**

H. Yang; P. Antonante; V. Tzoumas; L. Carlone

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1127-1134, DOI: [10.1109/LRA.2020.2965893](https://doi.org/10.1109/LRA.2020.2965893)

**VaLeNS: Design of a Novel Variable Length Nested Soft Arm**

N. K. Uppalapati; G. Krishnan

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1135-1142, DOI: [10.1109/LRA.2020.2967303](https://doi.org/10.1109/LRA.2020.2967303)

**Learning Robust Control Policies for End-to-End Autonomous Driving From**

### **Data-Driven Simulation**

A. Amini; I. Gilitschenski; J. Phillips; J. Moseyko; R. Banerjee; S. Karaman; D. Rus  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1143-1150, DOI: [10.1109/LRA.2020.2966414](https://doi.org/10.1109/LRA.2020.2966414)

### **Learning to Assemble: Estimating 6D Poses for Robotic Object-Object Manipulation**

S. Stevšić; S. Christen; O. Hilliges  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1159-1166, DOI: [10.1109/LRA.2020.2967325](https://doi.org/10.1109/LRA.2020.2967325)

### **Automated High-Productivity Microinjection System for Adherent Cells**

F. Pan; S. Chen; Y. Jiao; Z. Guan; A. Shakoor; D. Sun  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1167-1174, DOI: [10.1109/LRA.2020.2965870](https://doi.org/10.1109/LRA.2020.2965870)

### **Deep Reinforcement Learning for Instruction Following Visual Navigation in 3D Maze-Like Environments**

A. Devo; G. Costante; P. Valigi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1175-1182, DOI: [10.1109/LRA.2020.2965857](https://doi.org/10.1109/LRA.2020.2965857)

### **Mechanical Shock Propagation Reduction in Robot Legs**

B. R. P. Singh; R. Featherstone  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1183-1190, DOI: [10.1109/LRA.2020.2966395](https://doi.org/10.1109/LRA.2020.2966395)

### **DCAD: Decentralized Collision Avoidance With Dynamics Constraints for Agile Quadrotor Swarms**

S. H. Arul; D. Manocha  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1191-1198, DOI: [10.1109/LRA.2020.2967281](https://doi.org/10.1109/LRA.2020.2967281)

### **Aggressive Perception-Aware Navigation Using Deep Optical Flow Dynamics and PixelMPC**

K. Lee; J. Gibson; E. A. Theodorou  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1207-1214, DOI: [10.1109/LRA.2020.2965911](https://doi.org/10.1109/LRA.2020.2965911)

### **Concentric Precurved Bellows: New Bending Actuators for Soft Robots**

J. A. Childs; C. Rucker  
IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:1215-1222, DOI: [10.1109/LRA.2020.2967323](https://doi.org/10.1109/LRA.2020.2967323)

**Towards Privacy-Preserving Ego-Motion Estimation Using an Extremely Low-Resolution Camera**

A. Shariati; C. Holz; S. Sinha  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1223-1230, DOI: [10.1109/LRA.2020.2967307](https://doi.org/10.1109/LRA.2020.2967307)

**Error Bounds for PD-Controlled Mechanical Systems Under Bounded Disturbances Using Interval Arithmetic**

D. Calzolari; A. M. Giordano; A. Albu-Schäffer  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1231-1238, DOI: [10.1109/LRA.2020.2967315](https://doi.org/10.1109/LRA.2020.2967315)

**Gyroscopic Tensegrity Robots**

R. Goyal; M. Chen; M. Majji; R. E. Skelton  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1239-1246, DOI: [10.1109/LRA.2020.2967288](https://doi.org/10.1109/LRA.2020.2967288)

**High-Speed Autonomous Drifting With Deep Reinforcement Learning**

P. Cai; X. Mei; L. Tai; Y. Sun; M. Liu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1247-1254, DOI: [10.1109/LRA.2020.2967299](https://doi.org/10.1109/LRA.2020.2967299)

**Corners for Layout: End-to-End Layout Recovery From 360 Images**

C. Fernandez-Labrador; J. M. Facil; A. Perez-Yus; C. Demonceaux; J. Civera; J. J. Guerrero  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1255-1262, DOI: [10.1109/LRA.2020.2967274](https://doi.org/10.1109/LRA.2020.2967274)

**CNN Based Road User Detection Using the 3D Radar Cube**

A. Palffy; J. Dong; J. F. P. Kooij; D. M. Gavrila  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1263-1270, DOI: [10.1109/LRA.2020.2967272](https://doi.org/10.1109/LRA.2020.2967272)

**Motor Synergy Development in High-Performing Deep Reinforcement Learning Algorithms**

J. Chai; M. Hayashibe  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1271-1278, DOI: [10.1109/LRA.2020.2968067](https://doi.org/10.1109/LRA.2020.2968067)

### **Visual Object Search by Learning Spatial Context**

R. Druon; Y. Yoshiyasu; A. Kanezaki; A. Watt

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1279-1286, DOI: [10.1109/LRA.2020.2967677](https://doi.org/10.1109/LRA.2020.2967677)

### **Gated Recurrent Fusion to Learn Driving Behavior from Temporal Multimodal Data**

A. Narayanan; A. Siravuru; B. Dariush

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1287-1294, DOI: [10.1109/LRA.2020.2967738](https://doi.org/10.1109/LRA.2020.2967738)

### **Variational Fisheye Stereo**

M. Roxas; T. Oishi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1303-1310, DOI: [10.1109/LRA.2020.2967657](https://doi.org/10.1109/LRA.2020.2967657)

### **External Force Estimation for Industrial Robots With Flexible Joints**

Y. Lin; H. Zhao; H. Ding

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1311-1318, DOI: [10.1109/LRA.2020.2968058](https://doi.org/10.1109/LRA.2020.2968058)

### **Revisiting Scaling Laws for Robotic Mobility in Granular Media**

A. Thoesen; T. McBryan; M. Green; D. Mick; J. Martia; H. Marvi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1319-1325, DOI: [10.1109/LRA.2020.2968031](https://doi.org/10.1109/LRA.2020.2968031)

### **Safe Robot Navigation Via Multi-Modal Anomaly Detection**

L. Wellhausen; R. Ranftl; M. Hutter

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1326-1333, DOI: [10.1109/LRA.2020.2967706](https://doi.org/10.1109/LRA.2020.2967706)

### **Semantic Foreground Inpainting From Weak Supervision**

C. Lu; G. Dubbelman

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1334-1341, DOI: [10.1109/LRA.2020.2967712](https://doi.org/10.1109/LRA.2020.2967712)

### **Automatic Normal Positioning of Robotic Ultrasound Probe Based Only on Confidence Map Optimization and Force Measurement**

Z. Jiang; M. Grimm; M. Zhou; J. Esteban; W. Simson; G. Zahnd; N. Navab

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1342-1349, DOI: [10.1109/LRA.2020.2967682](https://doi.org/10.1109/LRA.2020.2967682)

**DDM: Fast Near-Optimal Multi-Robot Path Planning Using Diversified-Path and Optimal Sub-Problem Solution Database Heuristics**

S. D. Han; J. Yu

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1350-1357, DOI: [10.1109/LRA.2020.2967326](https://doi.org/10.1109/LRA.2020.2967326)

**Wall Deadlock Evasion Control Based on Rotation Radius Adjustment**

S. Kojima; K. Ohno; T. Suzuki; Y. Okada; T. Westfechtel; S. Tadokoro

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1358-1365, DOI: [10.1109/LRA.2020.2967332](https://doi.org/10.1109/LRA.2020.2967332)

**A Device for Rapid, Automated Trimming of Insect-Sized Flying Robots**

D. Dhingra; Y. M. Chukewad; S. B. Fuller

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1373-1380, DOI: [10.1109/LRA.2020.2967318](https://doi.org/10.1109/LRA.2020.2967318)

**Design, Modeling, and Control of a Compact SMA-Actuated MR-Conditional Steerable Neurosurgical Robot**

S. Shao; B. Sun; Q. Ding; W. Yan; W. Zheng; K. Yan; Y. Hong; S. S. Cheng

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1381-1388, DOI: [10.1109/LRA.2020.2967297](https://doi.org/10.1109/LRA.2020.2967297)

**A Semi-Autonomous Stereotactic Brain Biopsy Robot With Enhanced Safety**

M. Ye; W. Li; D. T. M. Chan; P. W. Y. Chiu; Z. Li

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1405-1412, DOI: [10.1109/LRA.2020.2967732](https://doi.org/10.1109/LRA.2020.2967732)

**Synthesis of a Time-Varying Communication Network by Robot Teams With Information Propagation Guarantees**

X. Yu; M. A. Hsieh

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1413-1420, DOI: [10.1109/LRA.2020.2967704](https://doi.org/10.1109/LRA.2020.2967704)

**Deceiving Image-to-Image Translation Networks for Autonomous Driving With Adversarial Perturbations**

L. Wang; W. Cho; K. Yoon

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1421-1428, DOI: [10.1109/LRA.2020.2967289](https://doi.org/10.1109/LRA.2020.2967289)

**A Data-Driven Motion Prior for Continuous-Time Trajectory Estimation on SE(3)**

J. N. Wong; D. J. Yoon; A. P. Schoellig; T. D. Barfoot

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1429-1436, DOI: [10.1109/LRA.2020.2969153](https://doi.org/10.1109/LRA.2020.2969153)

**A Probabilistic Model-Based Online Learning Optimal Control Algorithm for Soft Pneumatic Actuators**

Z. Q. Tang; H. L. Heung; K. Y. Tong; Z. Li  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1437-1444, DOI: [10.1109/LRA.2020.2967293](https://doi.org/10.1109/LRA.2020.2967293)

**Adaptive Air Density Estimation for Precise Tracking Control and Accurate External Wrench Observation for Flying Robots**

M. Maier; M. Keppler; C. Ott; A. Albu-Schäffer  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1445-1452, DOI: [10.1109/LRA.2020.2967333](https://doi.org/10.1109/LRA.2020.2967333)

**Hybrid Camera Pose Estimation With Online Partitioning for SLAM**

X. Li; H. Ling  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1453-1460, DOI: [10.1109/LRA.2020.2967688](https://doi.org/10.1109/LRA.2020.2967688)

**An Experimental Comparison Towards Autonomous Camera Navigation to Optimize Training in Robot Assisted Surgery**

A. Mariani; G. Colaci; T. Da Col; N. Sanna; E. Vendrame; A. Menciassi; E. De Momi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1461-1467, DOI: [10.1109/LRA.2020.2965067](https://doi.org/10.1109/LRA.2020.2965067)

**Real-Time Nonlinear Model Predictive Control of Robots Using a Graphics Processing Unit**

P. Hyatt; M. D. Killpack  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1468-1475, DOI: [10.1109/LRA.2020.2965393](https://doi.org/10.1109/LRA.2020.2965393)

**Direct Visual-Inertial Ego-Motion Estimation Via Iterated Extended Kalman Filter**

S. Zhong; P. Chirarattananon  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1476-1483, DOI: [10.1109/LRA.2020.2968071](https://doi.org/10.1109/LRA.2020.2968071)

**Unseen Salient Object Discovery for Monocular Robot Vision**

D. M. Chan; L. D. Riek  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2

Pages:1484-1491, DOI: [10.1109/LRA.2020.2968059](https://doi.org/10.1109/LRA.2020.2968059)

### **Learning Matchable Image Transformations for Long-Term Metric Visual Localization**

L. Clement; M. Gridseth; J. Tomasi; J. Kelly

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1492-1499, DOI: [10.1109/LRA.2020.2967659](https://doi.org/10.1109/LRA.2020.2967659)

### **An Efficient Sampling-Based Method for Online Informative Path Planning in Unknown Environments**

L. Schmid; M. Pantic; R. Khanna; L. Ott; R. Siegwart; J. Nieto

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1500-1507, DOI: [10.1109/LRA.2020.2969191](https://doi.org/10.1109/LRA.2020.2969191)

### **A Lightweight and Accurate Localization Algorithm Using Multiple Inertial Measurement Units**

M. Zhang; X. Xu; Y. Chen; M. Li

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1508-1515, DOI: [10.1109/LRA.2020.2969146](https://doi.org/10.1109/LRA.2020.2969146)

### **LaryngoTORS: A Novel Cable-Driven Parallel Robotic System for Transoral Laser Phonosurgery**

M. Zhao; T. J. C. O. Vrieling; A. A. Kogkas; M. S. Runciman; D. S. Elson; G. P. Mylonas

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1516-1523, DOI: [10.1109/LRA.2020.2969186](https://doi.org/10.1109/LRA.2020.2969186)

### **A Novel Sensing Method to Detect Tissue Boundaries During Robotic Needle Insertion Based on Laser Doppler Flowmetry**

V. Virdyawan; O. Dessi; F. R. y. Baena

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1524-1531, DOI: [10.1109/LRA.2020.2969151](https://doi.org/10.1109/LRA.2020.2969151)

### **Skeleton-Based Conditionally Independent Gaussian Process Implicit Surfaces for Fusion in Sparse to Dense 3D Reconstruction**

L. Wu; R. Falque; V. Perez-Puchalt; L. Liu; N. Pietroni; T. Vidal-Calleja

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1532-1539, DOI: [10.1109/LRA.2020.2969175](https://doi.org/10.1109/LRA.2020.2969175)

### **Hand-Eye Calibration of Surgical Instrument for Robotic Surgery Using Interactive Manipulation**

F. Zhong; Z. Wang; W. Chen; K. He; Y. Wang; Y. Liu

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:1540-1547, DOI: [10.1109/LRA.2020.2967685](https://doi.org/10.1109/LRA.2020.2967685)

### **Quadrupedal Locomotion on Uneven Terrain With Sensorized Feet**

G. Valsecchi; R. Grandia; M. Hutter  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1548-1555, DOI: [10.1109/LRA.2020.2969160](https://doi.org/10.1109/LRA.2020.2969160)

### **Spatiotemporal Camera-LiDAR Calibration: A Targetless and Structureless Approach**

C. Park; P. Moghadam; S. Kim; S. Sridharan; C. Fookes  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1556-1563, DOI: [10.1109/LRA.2020.2969164](https://doi.org/10.1109/LRA.2020.2969164)

### **3D Path-Following Using MRAC on a Millimeter-Scale Spiral-Type Magnetic Robot**

H. Zhao; J. Leclerc; M. Feucht; O. Bailey; A. T. Becker  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1564-1571, DOI: [10.1109/LRA.2020.2969159](https://doi.org/10.1109/LRA.2020.2969159)

### **Koopman Operator Method for Chance-Constrained Motion Primitive Planning**

G. Gutow; J. D. Rogers  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1572-1578, DOI: [10.1109/LRA.2020.2969187](https://doi.org/10.1109/LRA.2020.2969187)

### **Characterizing User Responses to Failures in Aerial Autonomous Systems**

S. Kunde; S. Elbaum; B. A. Duncan  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1587-1594, DOI: [10.1109/LRA.2020.2967304](https://doi.org/10.1109/LRA.2020.2967304)

### **Online Motion Planning for Deforming Maneuvering and Manipulation by Multilinked Aerial Robot Based on Differential Kinematics**

M. Zhao; F. Shi; T. Anzai; K. Okada; M. Inaba  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1602-1609, DOI: [10.1109/LRA.2020.2967285](https://doi.org/10.1109/LRA.2020.2967285)

### **Electromagnetic Haptic Feedback System for Use With a Graphical Display Using Flat Coils and Sensor Array**

P. Berkelman; H. Abdul-Ghani  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1618-1625, DOI: [10.1109/LRA.2020.2969913](https://doi.org/10.1109/LRA.2020.2969913)

**Pedestrian Planar LiDAR Pose (PPLP) Network for Oriented Pedestrian Detection Based on Planar LiDAR and Monocular Images**

F. Bu; T. Le; X. Du; R. Vasudevan; M. Johnson-Roberson

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1626-1633, DOI: [10.1109/LRA.2019.2962358](https://doi.org/10.1109/LRA.2019.2962358)

**Characterizing Torso Stiffness in Female Adolescents With and Without Scoliosis**

R. C. Murray; C. Ophaswongse; J. Park; S. K. Agrawal

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1634-1641, DOI: [10.1109/LRA.2020.2969945](https://doi.org/10.1109/LRA.2020.2969945)

**Vision-Based Dynamic Virtual Fixtures for Tools Collision Avoidance in Robotic Surgery**

R. Moccia; C. Iacono; B. Siciliano; F. Ficuciello

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1650-1655, DOI: [10.1109/LRA.2020.2969941](https://doi.org/10.1109/LRA.2020.2969941)

**DOOR-SLAM: Distributed, Online, and Outlier Resilient SLAM for Robotic Teams**

P. Lajoie; B. Ramtoula; Y. Chang; L. Carlone; G. Beltrame

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1656-1663, DOI: [10.1109/LRA.2020.2967681](https://doi.org/10.1109/LRA.2020.2967681)

**Learning Transformable and Plannable se(3) Features for Scene Imitation of a Mobile Service Robot**

J. H. Park; J. Kim; Y. Jang; I. Jang; H. J. Kim

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1664-1671, DOI: [10.1109/LRA.2020.2968032](https://doi.org/10.1109/LRA.2020.2968032)

**DeepTIO: A Deep Thermal-Inertial Odometry With Visual Hallucination**

M. R. U. Saputra; P. P. B. de Gusmao; C. X. Lu; Y. Almalioglu; S. Rosa; C. Chen; J. Wahlström; W. Wang; A. Markham; N. Trigoni

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1672-1679, DOI: [10.1109/LRA.2020.2969170](https://doi.org/10.1109/LRA.2020.2969170)

**One Robot for Many Tasks: Versatile Co-Design Through Stochastic Programming**

G. Bravo-Palacios; A. D. Prete; P. M. Wensing

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1680-1687, DOI: [10.1109/LRA.2020.2969948](https://doi.org/10.1109/LRA.2020.2969948)

### **Exploring Performance Bounds of Visual Place Recognition Using Extended Precision**

B. Ferrarini; M. Waheed; S. Waheed; S. Ehsan; M. J. Milford; K. D. McDonald-Maier

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1688-1695, DOI: [10.1109/LRA.2020.2969197](https://doi.org/10.1109/LRA.2020.2969197)

### **What the Constant Velocity Model Can Teach Us About Pedestrian Motion Prediction**

C. Schöller; V. Aravantinos; F. Lay; A. Knoll

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1696-1703, DOI: [10.1109/LRA.2020.2969925](https://doi.org/10.1109/LRA.2020.2969925)

### **3D Electromagnetic Reconfiguration Enabled by Soft Continuum Robots**

L. T. Gan; L. H. Blumenschein; Z. Huang; A. M. Okamura; E. W. Hawkes; J. A. Fan

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1704-1711, DOI: [10.1109/LRA.2020.2969922](https://doi.org/10.1109/LRA.2020.2969922)

### **Towards FBG-Based Shape Sensing for Micro-Scale and Meso-Scale Continuum Robots With Large Deflection**

Y. Chitalia; N. J. Deaton; S. Jeong; N. Rahman; J. P. Desai

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1712-1719, DOI: [10.1109/LRA.2020.2969934](https://doi.org/10.1109/LRA.2020.2969934)

### **Rigid-Soft Interactive Learning for Robust Grasping**

L. Yang; F. Wan; H. Wang; X. Liu; Y. Liu; J. Pan; C. Song

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1720-1727, DOI: [10.1109/LRA.2020.2969932](https://doi.org/10.1109/LRA.2020.2969932)

### **Snake-Inspired Kirigami Skin for Lateral Undulation of a Soft Snake Robot**

C. Branyan; R. L. Hatton; Y. Mengüç

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1728-1733, DOI: [10.1109/LRA.2020.2969949](https://doi.org/10.1109/LRA.2020.2969949)

### **Reactive Support Polygon Adaptation for the Hybrid Legged-Wheeled CENTAURO Robot**

M. Kameduła; N. G. Tsagarakis

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:1734-1741, DOI: [10.1109/LRA.2020.2969954](https://doi.org/10.1109/LRA.2020.2969954)

### **Fast Panoptic Segmentation Network**

D. de Geus; P. Meletis; G. Dubbelman

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1742-1749, DOI: [10.1109/LRA.2020.2969919](https://doi.org/10.1109/LRA.2020.2969919)

**A Stretchable Capacitive Sensory Skin for Exploring Cluttered Environments**

A. Gruebele; J. Roberge; A. Zerbe; W. Ruotolo; T. M. Huh; M. R. Cutkosky  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1750-1757, DOI: [10.1109/LRA.2020.2969939](https://doi.org/10.1109/LRA.2020.2969939)

**High Fidelity Force Feedback Facilitates Manual Injection in Biological Samples**

A. Mohand-Ousaid; S. Haliyo; S. Régnier; V. Hayward  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1758-1763, DOI: [10.1109/LRA.2020.2969940](https://doi.org/10.1109/LRA.2020.2969940)

**From Planes to Corners: Multi-Purpose Primitive Detection in Unorganized 3D Point Clouds**

C. Sommer; Y. Sun; L. Guibas; D. Cremers; T. Birdal  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1764-1771, DOI: [10.1109/LRA.2020.2969936](https://doi.org/10.1109/LRA.2020.2969936)

**Open-Loop Position Control in Collaborative, Modular Variable-Stiffness-Link (VSL) Robots**

J. M. Gandarias; Y. Wang; A. Stilli; A. J. García-Cerezo; J. M. Gómez-de-Gabriel; H. A. Wurdemann  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1772-1779, DOI: [10.1109/LRA.2020.2969943](https://doi.org/10.1109/LRA.2020.2969943)

**Design of Tensegrity-Based Manipulators: Comparison of Two Approaches to Respect a Remote Center of Motion Constraint**

J. Begey; M. Vedrines; P. Renaud  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1788-1795, DOI: [10.1109/LRA.2020.2969190](https://doi.org/10.1109/LRA.2020.2969190)

**Temporal Muscle Synergy Features Estimate Effects of Short-Term Rehabilitation in Sit-to-Stand of Post-Stroke Patients**

N. Yang; Q. An; H. Kogami; K. Yoshida; H. Yamakawa; Y. Tamura; S. Shimoda; H. Yamasaki; M. Sonoo; M. Itkonen; F. Shibata-Alnajjar; N. Hattori; M. Kinomoto; K. Takahashi; T. Fujii; H. Otomune; I. Miyai; A. Yamashita; H. Asama  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1796-1802, DOI: [10.1109/LRA.2020.2969942](https://doi.org/10.1109/LRA.2020.2969942)

**Track to Reconstruct and Reconstruct to Track**

J. Luiten; T. Fischer; B. Leibe

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1803-1810, DOI: [10.1109/LRA.2020.2969183](https://doi.org/10.1109/LRA.2020.2969183)

**Fast Model-Based Contact Patch and Pose Estimation for Highly Deformable Dense-Geometry Tactile Sensors**

N. Kuppaswamy; A. Castro; C. Phillips-Grafflin; A. Alspach; R. Tedrake  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1811-1818, DOI: [10.1109/LRA.2019.2961050](https://doi.org/10.1109/LRA.2019.2961050)

**Enhanced Haptic Sensations Using a Novel Electrostatic Vibration Actuator With Frequency Beating Phenomenon**

J. Koo; J. M. Schuster; T. Tantiyartyanontha; Y. Kim; T. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1827-1834, DOI: [10.1109/LRA.2020.2967298](https://doi.org/10.1109/LRA.2020.2967298)

**CoHOG: A Light-Weight, Compute-Efficient, and Training-Free Visual Place Recognition Technique for Changing Environments**

M. Zaffar; S. Ehsan; M. Milford; K. McDonald-Maier  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1835-1842, DOI: [10.1109/LRA.2020.2969917](https://doi.org/10.1109/LRA.2020.2969917)

**An Input Observer-Based Stiffness Estimation Approach for Flexible Robot Joints**

A. Fagiolini; M. Trumić; K. Jovanović  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1843-1850, DOI: [10.1109/LRA.2020.2969952](https://doi.org/10.1109/LRA.2020.2969952)

**Interactive Natural Language-Based Person Search**

V. Shree; W. Chao; M. Campbell  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1851-1858, DOI: [10.1109/LRA.2020.2969921](https://doi.org/10.1109/LRA.2020.2969921)

**A Transition-Aware Method for the Simulation of Compliant Contact With Regularized Friction**

A. M. Castro; A. Qu; N. Kuppaswamy; A. Alspach; M. Sherman  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1859-1866, DOI: [10.1109/LRA.2020.2969933](https://doi.org/10.1109/LRA.2020.2969933)

**A Proprioceptive Bellows (PB) Actuator With Position Feedback and Force Estimation**

J. Zhou; Y. Chen; X. Chen; Z. Wang; Y. Li; Y. Liu  
IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:1867-1874, DOI: [10.1109/LRA.2020.2969920](https://doi.org/10.1109/LRA.2020.2969920)

**A Haptic Continuum Interface for the Teleoperation of Extensible Continuum Manipulators**

C. G. Frazelle; A. D. Kapadia; I. D. Walker  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1875-1882, DOI: [10.1109/LRA.2020.2970642](https://doi.org/10.1109/LRA.2020.2970642)

**Stretchable Kirigami Components for Composite Meso-Scale Robots**

A. Firouzeh; T. Higashisaka; K. Nagato; K. Cho; J. Paik  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1883-1890, DOI: [10.1109/LRA.2020.2969924](https://doi.org/10.1109/LRA.2020.2969924)

**Optimization-Based Distributed Flocking Control for Multiple Rigid Bodies**

T. Ibuki; S. Wilson; J. Yamauchi; M. Fujita; M. Egerstedt  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1891-1898, DOI: [10.1109/LRA.2020.2969950](https://doi.org/10.1109/LRA.2020.2969950)

**Unsupervised Depth Completion From Visual Inertial Odometry**

A. Wong; X. Fei; S. Tsuei; S. Soatto  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1899-1906, DOI: [10.1109/LRA.2020.2969938](https://doi.org/10.1109/LRA.2020.2969938)

**High Speed Three Dimensional Tracking of Swimming Cell by Synchronous Modulation Between TeCE Camera and TAG Lens**

K. Yamato; H. Chiba; H. Oku  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1907-1914, DOI: [10.1109/LRA.2020.2969911](https://doi.org/10.1109/LRA.2020.2969911)

**Real-Time Optimal Trajectory Generation and Control of a Multi-Rotor With a Suspended Load for Obstacle Avoidance**

C. Y. Son; H. Seo; D. Jang; H. J. Kim  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1915-1922, DOI: [10.1109/LRA.2020.2967279](https://doi.org/10.1109/LRA.2020.2967279)

**Group Split and Merge Prediction With 3D Convolutional Networks**

A. Wang; A. Steinfeld  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1923-1930, DOI: [10.1109/LRA.2020.2969947](https://doi.org/10.1109/LRA.2020.2969947)

**Augmented LiDAR Simulator for Autonomous Driving**

J. Fang; D. Zhou; F. Yan; T. Zhao; F. Zhang; Y. Ma; L. Wang; R. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1931-1938, DOI: [10.1109/LRA.2020.2969927](https://doi.org/10.1109/LRA.2020.2969927)

**Reconfiguration Solution of a Variable Topology Truss: Design and Experiment**

E. Park; J. Bae; S. Park; J. Kim; M. Yim; T. Seo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1939-1945, DOI: [10.1109/LRA.2020.2970618](https://doi.org/10.1109/LRA.2020.2970618)

**A Tele-Operated Microsurgical Forceps-Driver With a Variable Stiffness Haptic Feedback Master Device**

S. Park; N. Jang; Y. S. Ihn; S. Yang; J. Jeong; S. Yim; S. Oh; K. Kim; D. Hwang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1946-1953, DOI: [10.1109/LRA.2020.2969161](https://doi.org/10.1109/LRA.2020.2969161)

**Panoptic 3D Mapping and Object Pose Estimation Using Adaptively Weighted Semantic Information**

D. Hoang; A. J. Lilienthal; T. Stoyanov  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1962-1969, DOI: [10.1109/LRA.2020.2970682](https://doi.org/10.1109/LRA.2020.2970682)

**Two Shank-Mounted IMUs-Based Gait Analysis and Classification for Neurological Disease Patients**

L. Wang; Y. Sun; Q. Li; T. Liu; J. Yi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1970-1976, DOI: [10.1109/LRA.2020.2970656](https://doi.org/10.1109/LRA.2020.2970656)

**Shape-Morphing Wheel Design and Analysis for Step Climbing in High Speed Locomotion**

S. Ryu; Y. Lee; T. Seo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1977-1982, DOI: [10.1109/LRA.2020.2970977](https://doi.org/10.1109/LRA.2020.2970977)

**Low to High Dimensional Modality Hallucination Using Aggregated Fields of View**

K. Gunasekar; Q. Qiu; Y. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1983-1990, DOI: [10.1109/LRA.2020.2970679](https://doi.org/10.1109/LRA.2020.2970679)

**Measurement Scheduling for Cooperative Localization in Resource-Constrained Conditions**

Q. Yan; L. Jiang; S. S. Kia

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1991-1998, DOI: [10.1109/LRA.2020.2969916](https://doi.org/10.1109/LRA.2020.2969916)

#### **Planning Maximum-Manipulability Cutting Paths**

T. Pardi; V. Ortenzi; C. Fairbairn; T. Pipe; A. M. G. Esfahani; R. Stolkin  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:1999-2006, DOI: [10.1109/LRA.2020.2970949](https://doi.org/10.1109/LRA.2020.2970949)

#### **Sheet-Based Gripper Featuring Passive Pull-In Functionality for Bin Picking and for Picking Up Thin Flexible Objects**

K. Morino; S. Kikuchi; S. Chikagawa; M. Izumi; T. Watanabe  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2007-2014, DOI: [10.1109/LRA.2020.2970630](https://doi.org/10.1109/LRA.2020.2970630)

#### **Autonomous and Reversible Adhesion Using Elastomeric Suction Cups for In-Vivo Medical Treatments**

H. Iwasaki; F. Lefevre; D. D. Damian; E. Iwase; S. Miyashita  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2015-2022, DOI: [10.1109/LRA.2020.2970633](https://doi.org/10.1109/LRA.2020.2970633)

#### **A Framework for Learning From Demonstration With Minimal Human Effort**

M. Rigter; B. Lacerda; N. Hawes  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2023-2030, DOI: [10.1109/LRA.2020.2970619](https://doi.org/10.1109/LRA.2020.2970619)

#### **In-Field Grape Cluster Size Assessment for Vine Yield Estimation Using a Mobile Robot and a Consumer Level RGB-D Camera**

P. Kurtser; O. Ringdahl; N. Rotstein; R. Berenstein; Y. Edan  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2031-2038, DOI: [10.1109/LRA.2020.2970654](https://doi.org/10.1109/LRA.2020.2970654)

#### **Online Simultaneous Semi-Parametric Dynamics Model Learning**

J. Smith; M. Mistry  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2039-2046, DOI: [10.1109/LRA.2020.2970987](https://doi.org/10.1109/LRA.2020.2970987)

#### **Backdrivable and Fully-Portable Pneumatic Back Support Exoskeleton for Lifting Assistance**

U. Heo; S. J. Kim; J. Kim  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2047-2053, DOI: [10.1109/LRA.2020.2969169](https://doi.org/10.1109/LRA.2020.2969169)

**Modulation of Robot Orientation Via Leg-Obstacle Contact Positions**

D. Ramesh; A. Kathail; D. E. Koditschek; F. Qian

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2054-2061, DOI: [10.1109/LRA.2020.2970687](https://doi.org/10.1109/LRA.2020.2970687)

**Dronument: System for Reliable Deployment of Micro Aerial Vehicles in Dark Areas of Large Historical Monuments**

P. Petráček; V. Krátký; M. Saska

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2078-2085, DOI: [10.1109/LRA.2020.2969935](https://doi.org/10.1109/LRA.2020.2969935)

**A Probabilistic Framework for Imitating Human Race Driver Behavior**

S. Löckel; J. Peters; P. van Vliet

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2086-2093, DOI: [10.1109/LRA.2020.2970620](https://doi.org/10.1109/LRA.2020.2970620)

**Design of a Percutaneous MRI-Guided Needle Robot With Soft Fluid-Driven Actuator**

Z. He; Z. Dong; G. Fang; J. D. Ho; C. Cheung; H. Chang; C. C. Chong; J. Y. Chan; D. T. M. Chan; K. Kwok

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2100-2107, DOI: [10.1109/LRA.2020.2969929](https://doi.org/10.1109/LRA.2020.2969929)

**Gaussian Process Preintegration for Inertial-Aided State Estimation**

C. Le Gentil; T. Vidal-Calleja; S. Huang

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2108-2114, DOI: [10.1109/LRA.2020.2970940](https://doi.org/10.1109/LRA.2020.2970940)

**Retraction of Soft Growing Robots Without Buckling**

M. M. Coad; R. P. Thomasson; L. H. Blumenschein; N. S. Usevitch; E. W. Hawkes;

A. M. Okamura

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2115-2122, DOI: [10.1109/LRA.2020.2970629](https://doi.org/10.1109/LRA.2020.2970629)

**Where to Map? Iterative Rover-Copter Path Planning for Mars Exploration**

T. Sasaki; K. Otsu; R. Thakker; S. Haesaert; A. Agha-mohammadi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2123-2130, DOI: [10.1109/LRA.2020.2970650](https://doi.org/10.1109/LRA.2020.2970650)

**A Programmably Compliant Origami Mechanism for Dynamically Dexterous Robots**

W. Chen; S. Misra; Y. Gao; Y. Lee; D. E. Koditschek; S. Yang; C. R. Sung  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2131-2137, DOI: [10.1109/LRA.2020.2970637](https://doi.org/10.1109/LRA.2020.2970637)

**An Integrated Dynamic Fall Protection and Recovery System for Two-Wheeled Humanoids**

G. Zambella; S. Monteleone; E. P. Herrera Alarcón; F. Negrello; G. Lentini; D. Caporale; G. Grioli; M. Garabini; M. G. Catalano; A. Bicchi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2138-2145, DOI: [10.1109/LRA.2020.2970951](https://doi.org/10.1109/LRA.2020.2970951)

**An Approximation Algorithm for a Task Allocation, Sequencing and Scheduling Problem Involving a Human-Robot Team**

S. K. K. Hari; A. Nayak; S. Rathinam  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2146-2153, DOI: [10.1109/LRA.2020.2970689](https://doi.org/10.1109/LRA.2020.2970689)

**Discovering Interpretable Dynamics by Sparsity Promotion on Energy and the Lagrangian**

H. K. Chu; M. Hayashibe  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2154-2160, DOI: [10.1109/LRA.2020.2970626](https://doi.org/10.1109/LRA.2020.2970626)

**Eye-in-Hand Visual Servoing Enhanced With Sparse Strain Measurement for Soft Continuum Robots**

X. Wang; G. Fang; K. Wang; X. Xie; K. Lee; J. D. L. Ho; W. L. Tang; J. Lam; K. Kwok  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2161-2168, DOI: [10.1109/LRA.2020.2969953](https://doi.org/10.1109/LRA.2020.2969953)

**A Robust UAV System for Operations in a Constrained Environment**

M. Petrlík; T. Báča; D. Heřt; M. Vrba; T. Krajník; M. Saska  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2169-2176, DOI: [10.1109/LRA.2020.2970980](https://doi.org/10.1109/LRA.2020.2970980)

**Leveraging the Human Operator in the Design and Control of Supernumerary Robotic Limbs**

J. Guggenheim; R. Hoffman; H. Song; H. H. Asada  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2177-2184, DOI: [10.1109/LRA.2020.2970948](https://doi.org/10.1109/LRA.2020.2970948)

**Full-Pose Manipulation Control of a Cable-Suspended Load With Multiple UAVs Under Uncertainties**

D. Sanalitra; H. J. Savino; M. Tognon; J. Cortés; A. Franchi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2185-2191, DOI: [10.1109/LRA.2020.2969930](https://doi.org/10.1109/LRA.2020.2969930)

**A Soft Pressure Sensor Skin for Hand and Wrist Orthoses**

X. Tan; L. He; J. Cao; W. Chen; T. Nanayakkara  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2192-2199, DOI: [10.1109/LRA.2020.2970947](https://doi.org/10.1109/LRA.2020.2970947)

**Broadcast Your Weaknesses: Cooperative Active Pose-Graph SLAM for Multiple Robots**

Y. Chen; L. Zhao; K. M. B. Lee; C. Yoo; S. Huang; R. Fitch  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2200-2207, DOI: [10.1109/LRA.2020.2970665](https://doi.org/10.1109/LRA.2020.2970665)

**Automatic Classification Error Detection and Correction for Robust Human Activity Recognition**

R. Mojarad; F. Attal; A. Chibani; Y. Amirat  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2208-2215, DOI: [10.1109/LRA.2020.2970667](https://doi.org/10.1109/LRA.2020.2970667)

**Time Optimal Motion Planning and Admittance Control for Cooperative Grasping**

D. Kaserer; H. Gatringer; A. Müller  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2216-2223, DOI: [10.1109/LRA.2020.2970644](https://doi.org/10.1109/LRA.2020.2970644)

**An Automated Dynamic-Balancing-Inspection Scheme for Wheel Machining**

H. Tieng; Y. Li; K. Tseng; H. Yang; F. Cheng  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2224-2231, DOI: [10.1109/LRA.2020.2970953](https://doi.org/10.1109/LRA.2020.2970953)

**Magnetically Steered Robotic Insertion of Cochlear-Implant Electrode Arrays: System Integration and First-In-Cadaver Results**

T. L. Bruns; K. E. Riojas; D. S. Ropella; M. S. Cavilla; A. J. Petruska; M. H. Freeman; R. F. Labadie; J. J. Abbott; R. J. Webster  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2240-2247, DOI: [10.1109/LRA.2020.2970978](https://doi.org/10.1109/LRA.2020.2970978)

**Relax and Recover: Guaranteed Range-Only Continuous Localization**

M. Pacholska; F. Dümbgen; A. Scholefield  
IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:2248-2255, DOI: [10.1109/LRA.2020.2970952](https://doi.org/10.1109/LRA.2020.2970952)

### **6-DOF Force Sensing for the Master Tool Manipulator of the da Vinci Surgical System**

D. G. Black; A. H. H. Hosseinabadi; S. E. Salcudean  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2264-2271, DOI: [10.1109/LRA.2020.2970944](https://doi.org/10.1109/LRA.2020.2970944)

### **Design of Deployable Soft Robots Through Plastic Deformation of Kirigami Structures**

A. Sedal; A. H. Memar; T. Liu; Y. Mengüç; N. Corson  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2272-2279, DOI: [10.1109/LRA.2020.2970943](https://doi.org/10.1109/LRA.2020.2970943)

### **UniGrasp: Learning a Unified Model to Grasp With Multifingered Robotic Hands**

L. Shao; F. Ferreira; M. Jorda; V. Nambiar; J. Luo; E. Solowjow; J. A. Ojea; O. Khatib; J. Bohg  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2286-2293, DOI: [10.1109/LRA.2020.2969946](https://doi.org/10.1109/LRA.2020.2969946)

### **SuPer: A Surgical Perception Framework for Endoscopic Tissue Manipulation With Surgical Robotics**

Y. Li; F. Richter; J. Lu; E. K. Funk; R. K. Orosco; J. Zhu; M. C. Yip  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2294-2301, DOI: [10.1109/LRA.2020.2970659](https://doi.org/10.1109/LRA.2020.2970659)

### **Autonomous Reflectance Transformation Imaging by a Team of Unmanned Aerial Vehicles**

V. Krátký; P. Petráček; V. Spurný; M. Saska  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2302-2309, DOI: [10.1109/LRA.2020.2970646](https://doi.org/10.1109/LRA.2020.2970646)

### **A Control Scheme With a Novel DMP-Robot Coupling Achieving Compliance and Tracking Accuracy Under Unknown Task Dynamics and Model Uncertainties**

K. Vlachos; Z. Doulgeri  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2310-2316, DOI: [10.1109/LRA.2020.2970985](https://doi.org/10.1109/LRA.2020.2970985)

### **Learning to Walk a Tripod Mobile Robot Using Nonlinear Soft Vibration Actuators With Entropy Adaptive Reinforcement Learning**

J. I. Kim; M. Hong; K. Lee; D. Kim; Y. Park; S. Oh  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2317-2324, DOI: [10.1109/LRA.2020.2970945](https://doi.org/10.1109/LRA.2020.2970945)

**Realtime Simulation of Thin-Shell Deformable Materials Using CNN-Based Mesh Embedding**

Q. Tan; Z. Pan; L. Gao; D. Manocha  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2325-2332, DOI: [10.1109/LRA.2020.2970624](https://doi.org/10.1109/LRA.2020.2970624)

**Optically Sensorized Elastomer Air Chamber for Proprioceptive Sensing of Soft Pneumatic Actuators**

J. Jung; M. Park; D. Kim; Y. Park  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2333-2340, DOI: [10.1109/LRA.2020.2970984](https://doi.org/10.1109/LRA.2020.2970984)

**A Framework for Formal Verification of Behavior Trees With Linear Temporal Logic**

O. Biggar; M. Zamani  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2341-2348, DOI: [10.1109/LRA.2020.2970634](https://doi.org/10.1109/LRA.2020.2970634)

**Forward Kinematics Kernel for Improved Proxy Collision Checking**

N. Das; M. C. Yip  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2349-2356, DOI: [10.1109/LRA.2020.2970645](https://doi.org/10.1109/LRA.2020.2970645)

**Faster Confined Space Manufacturing Teleoperation Through Dynamic Autonomy With Task Dynamics Imitation Learning**

P. Owan; J. Garbini; S. Devasia  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2357-2364, DOI: [10.1109/LRA.2020.2970653](https://doi.org/10.1109/LRA.2020.2970653)

**Self-Supervised Learning of State Estimation for Manipulating Deformable Linear Objects**

M. Yan; Y. Zhu; N. Jin; J. Bohg  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2372-2379, DOI: [10.1109/LRA.2020.2969931](https://doi.org/10.1109/LRA.2020.2969931)

**Anisotropic Soft Robots Based on 3D Printed Meso-Structured Materials: Design, Modeling by Homogenization and Simulation**

F. Vanneste; O. Goury; J. Martínez; S. Lefebvre; H. Delingette; C. Duriez

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2380-2386, DOI: [10.1109/LRA.2020.2969926](https://doi.org/10.1109/LRA.2020.2969926)

**People's Adaptive Side-by-Side Model Evolved to Accompany Groups of People by Social Robots**

E. Repiso; A. Garrell; A. Sanfeliu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2387-2394, DOI: [10.1109/LRA.2020.2970676](https://doi.org/10.1109/LRA.2020.2970676)

**A Neuro-Inspired Computational Model for a Visually Guided Robotic Lamprey Using Frame and Event Based Cameras**

I. Youssef; M. Mutlu; B. Bayat; A. Crespi; S. Hauser; J. Conradt; A. Bernardino; A. Ijspeert  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2395-2402, DOI: [10.1109/LRA.2020.2972839](https://doi.org/10.1109/LRA.2020.2972839)

**Canopy-Based Monte Carlo Localization in Orchards Using Top-View Imagery**

O. Shalev; A. Degani  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2403-2410, DOI: [10.1109/LRA.2020.2970975](https://doi.org/10.1109/LRA.2020.2970975)

**Musculoskeletal AutoEncoder: A Unified Online Acquisition Method of Intersensory Networks for State Estimation, Control, and Simulation of Musculoskeletal Humanoids**

K. Kawaharazuka; K. Tsuzuki; M. Onitsuka; Y. Asano; K. Okada; K. Kawasaki; M. Inaba  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2411-2418, DOI: [10.1109/LRA.2020.2972841](https://doi.org/10.1109/LRA.2020.2972841)

**Kinematic Model of a Magnetic-Microrobot Swarm in a Rotating Magnetic Dipole Field**

B. Chaluvadi; K. M. Stewart; A. J. Sperry; H. C. Fu; J. J. Abbott  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2419-2426, DOI: [10.1109/LRA.2020.2972857](https://doi.org/10.1109/LRA.2020.2972857)

**Interpretable Run-Time Monitoring and Replanning for Safe Autonomous Systems Operations**

C. D. Franco; N. Bezzo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2427-2434, DOI: [10.1109/LRA.2020.2972828](https://doi.org/10.1109/LRA.2020.2972828)

**Strategy for Roller Chain Assembly With Parallel Jaw Gripper**

K. Tatemura; H. Dobashi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2435-2442, DOI: [10.1109/LRA.2020.2972860](https://doi.org/10.1109/LRA.2020.2972860)

**Robust Humanoid Contact Planning With Learned Zero- and One-Step Capturability Prediction**

Y. Lin; L. Righetti; D. Berenson  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2451-2458, DOI: [10.1109/LRA.2020.2972825](https://doi.org/10.1109/LRA.2020.2972825)

**Self-Supervised Linear Motion Deblurring**

P. Liu; J. Janai; M. Pollefeys; T. Sattler; A. Geiger  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2475-2482, DOI: [10.1109/LRA.2020.2972873](https://doi.org/10.1109/LRA.2020.2972873)

**An Iterative Dynamic Programming Approach to the Multipoint Markov-Dubins Problem**

M. Frego; P. Bevilacqua; E. Saccon; L. Palopoli; D. Fontanelli  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2483-2490, DOI: [10.1109/LRA.2020.2972787](https://doi.org/10.1109/LRA.2020.2972787)

**Autonomous Excavation of Rocks Using a Gaussian Process Model and Unscented Kalman Filter**

F. E. Sotiropoulos; H. H. Asada  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2491-2497, DOI: [10.1109/LRA.2020.2972891](https://doi.org/10.1109/LRA.2020.2972891)

**Simultaneous Policy and Discrete Communication Learning for Multi-Agent Cooperation**

B. Freed; G. Sartoretti; H. Choset  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2498-2505, DOI: [10.1109/LRA.2020.2972862](https://doi.org/10.1109/LRA.2020.2972862)

**Salient View Selection for Visual Recognition of Industrial Components**

S. Kim; G. Choe; M. Park; I. S. Kweon  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2506-2513, DOI: [10.1109/LRA.2020.2972886](https://doi.org/10.1109/LRA.2020.2972886)

**CNN-Based Lidar Point Cloud De-Noising in Adverse Weather**

R. Heinzler; F. Piewak; P. Schindler; W. Stork  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2

Pages:2514-2521, DOI: [10.1109/LRA.2020.2972865](https://doi.org/10.1109/LRA.2020.2972865)

### **Self-Reconfiguration in Response to Faults in Modular Aerial Systems**

N. Gandhi; D. Saldaña; V. Kumar; L. T. X. Phan

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2522-2529, DOI: [10.1109/LRA.2020.2970685](https://doi.org/10.1109/LRA.2020.2970685)

### **An Origami-Inspired Variable Friction Surface for Increasing the Dexterity of Robotic Grippers**

Q. Lu; A. B. Clark; M. Shen; N. Rojas

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2538-2545, DOI: [10.1109/LRA.2020.2972833](https://doi.org/10.1109/LRA.2020.2972833)

### **Multifunctional Remotely Actuated 3-DOF Supernumerary Robotic Arm Based on Magnetorheological Clutches and Hydrostatic Transmission Lines**

C. Véronneau; J. Denis; L. Lebel; M. Denninger; V. Blanchard; A. Girard; J. Plante

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2546-2553, DOI: [10.1109/LRA.2020.2967327](https://doi.org/10.1109/LRA.2020.2967327)

### **A Surgeon-Robot Shared Control for Ergonomic Pedicle Screw Fixation**

C. Lauretti; F. Cordella; C. Tamantini; C. Gentile; F. S. d. Luzio; L. Zollo

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2554-2561, DOI: [10.1109/LRA.2020.2972892](https://doi.org/10.1109/LRA.2020.2972892)

### **Dynamically Reconfigurable Tactile Sensor for Robotic Manipulation**

T. M. Huh; H. Choi; S. Willcox; S. Moon; M. R. Cutkosky

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2562-2569, DOI: [10.1109/LRA.2020.2972881](https://doi.org/10.1109/LRA.2020.2972881)

### **Dynamic Response of Swimming Paramecium Induced by Local Stimulation Using a Threadlike-Microtool**

B. Ahmad; H. Maeda; T. Kawahara

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2570-2577, DOI: [10.1109/LRA.2020.2972848](https://doi.org/10.1109/LRA.2020.2972848)

### **Robustness in Human Manipulation of Dynamically Complex Objects Through Control Contraction Metrics**

S. Bazzi; D. Sternad

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2578-2585, DOI: [10.1109/LRA.2020.2972863](https://doi.org/10.1109/LRA.2020.2972863)

### **Path Planning With Local Motion Estimations**

J. Guzzi; R. O. Chavez-Garcia; M. Nava; L. M. Gambardella; A. Giusti  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2586-2593, DOI: [10.1109/LRA.2020.2972849](https://doi.org/10.1109/LRA.2020.2972849)

**Memory of Motion for Warm-Starting Trajectory Optimization**

T. S. Lembono; A. Paolillo; E. Pignat; S. Calinon  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2594-2601, DOI: [10.1109/LRA.2020.2972893](https://doi.org/10.1109/LRA.2020.2972893)

**Towards Efficient Human-Robot Collaboration With Robust Plan Recognition and Trajectory Prediction**

Y. Cheng; L. Sun; C. Liu; M. Tomizuka  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2602-2609, DOI: [10.1109/LRA.2020.2972874](https://doi.org/10.1109/LRA.2020.2972874)

**Learning Natural Locomotion Behaviors for Humanoid Robots Using Human Bias**

C. Yang; K. Yuan; S. Heng; T. Komura; Z. Li  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2610-2617, DOI: [10.1109/LRA.2020.2972879](https://doi.org/10.1109/LRA.2020.2972879)

**Shear, Torsion and Pressure Tactile Sensor via Plastic Optofiber Guided Imaging**

D. Baimukashev; Z. Kappasov; H. A. Varol  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2618-2625, DOI: [10.1109/LRA.2020.2972876](https://doi.org/10.1109/LRA.2020.2972876)

**Learning Robust Task Priorities and Gains for Control of Redundant Robots**

L. Penco; E. M. Hoffman; V. Modugno; W. Gomes; J. Mouret; S. Ivaldi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2626-2633, DOI: [10.1109/LRA.2020.2972847](https://doi.org/10.1109/LRA.2020.2972847)

**Cross-Domain Motion Transfer via Safety-Aware Shared Latent Space Modeling**

S. Choi; J. Kim  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2634-2641, DOI: [10.1109/LRA.2020.2969914](https://doi.org/10.1109/LRA.2020.2969914)

**Online Disturbance Estimation for Improving Kinematic Accuracy in Continuum Manipulators**

F. Campisano; A. A. Ramirez; S. Caló; J. H. Chandler; K. L. Obstein; R. J. Webster; P. Valdastrì  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2

Pages:2642-2649, DOI: [10.1109/LRA.2020.2972880](https://doi.org/10.1109/LRA.2020.2972880)

**Permanent Magnet-Based Localization for Growing Robots in Medical Applications**

C. Watson; T. K. Morimoto

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2666-2673, DOI: [10.1109/LRA.2020.2972890](https://doi.org/10.1109/LRA.2020.2972890)

**Wildfire Fighting by Unmanned Aerial System Exploiting Its Time-Varying Mass**

D. A. Saikin; T. Baca; M. Gurtner; M. Saska

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2674-2681, DOI: [10.1109/LRA.2020.2972827](https://doi.org/10.1109/LRA.2020.2972827)

**A Data-Driven Approach to Prediction and Optimal Bucket-Filling Control for Autonomous Excavators**

R. J. Sandzimier; H. H. Asada

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2682-2689, DOI: [10.1109/LRA.2020.2969944](https://doi.org/10.1109/LRA.2020.2969944)

**Reactive Navigation Under Non-Parametric Uncertainty Through Hilbert Space Embedding of Probabilistic Velocity Obstacles**

S. N. J. Poonganam; B. Gopalakrishnan; V. S. S. B. K. Avula; A. K. Singh; K. M. Krishna; D. Manocha

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2690-2697, DOI: [10.1109/LRA.2020.2972840](https://doi.org/10.1109/LRA.2020.2972840)

**Are We There Yet? Comparing Remote Learning Technologies in the University Classroom**

N. T. Fitter; N. Raghunath; E. Cha; C. A. Sanchez; L. Takayama; M. J. Mataric

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2706-2713, DOI: [10.1109/LRA.2020.2970939](https://doi.org/10.1109/LRA.2020.2970939)

**Soft Fingertips With Tactile Sensing and Active Deformation for Robust Grasping of Delicate Objects**

L. He; Q. Lu; S. Abad; N. Rojas; T. Nanayakkara

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:2714-2721, DOI: [10.1109/LRA.2020.2972851](https://doi.org/10.1109/LRA.2020.2972851)

**Reflective-AR Display: An Interaction Methodology for Virtual-to-Real Alignment in Medical Robotics**

J. Fotouhi; T. Song; A. Mehrfard; G. Taylor; Q. Wang; F. Xian; A. Martin-Gomez; B. Fuerst; M. Armand; M. Unberath; N. Navab

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2  
Pages:2722-2729, DOI: [10.1109/LRA.2020.2972831](https://doi.org/10.1109/LRA.2020.2972831)

**Design of a Novel Multiple-DOF Extendable Arm With Rigid Components Inspired by a Deployable Origami Structure**

H. Matsuo; H. H. Asada; Y. Takeda  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2730-2737, DOI: [10.1109/LRA.2020.2970976](https://doi.org/10.1109/LRA.2020.2970976)

**Cooperative Team Strategies for Multi-Player Perimeter-Defense Games**

D. Shishika; J. Paulos; V. Kumar  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2738-2745, DOI: [10.1109/LRA.2020.2972818](https://doi.org/10.1109/LRA.2020.2972818)

**Learning to Collaborate From Simulation for Robot-Assisted Dressing**

A. Clegg; Z. Erickson; P. Grady; G. Turk; C. C. Kemp; C. K. Liu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2746-2753, DOI: [10.1109/LRA.2020.2972852](https://doi.org/10.1109/LRA.2020.2972852)

**Robot Navigation in Crowds by Graph Convolutional Networks With Attention Learned From Human Gaze**

Y. Chen; C. Liu; B. E. Shi; M. Liu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2754-2761, DOI: [10.1109/LRA.2020.2972868](https://doi.org/10.1109/LRA.2020.2972868)

**Force-Guided High-Precision Grasping Control of Fragile and Deformable Objects Using sEMG-Based Force Prediction**

R. Wen; K. Yuan; Q. Wang; S. Heng; Z. Li  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2762-2769, DOI: [10.1109/LRA.2020.2974439](https://doi.org/10.1109/LRA.2020.2974439)

**Tethered Tool Manipulation Planning With Cable Maneuvering**

D. Sánchez; W. Wan; K. Harada  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2777-2784, DOI: [10.1109/LRA.2020.2974675](https://doi.org/10.1109/LRA.2020.2974675)

**VibeRo: Vibrotactile Stiffness Perception Interface for Virtual Reality**

A. Adilkhanov; A. Yelenov; R. S. Reddy; A. Terekhov; Z. Kappasov  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2785-2792, DOI: [10.1109/LRA.2020.2972793](https://doi.org/10.1109/LRA.2020.2972793)

**Dynamic Control of a Rigid Pneumatic Gripper**

R. A. Romeo; L. Fiorio; G. L'Erario; M. Maggiali; G. Metta; D. Pucci  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2793-2800, DOI: [10.1109/LRA.2020.2974446](https://doi.org/10.1109/LRA.2020.2974446)

### **Control of a Silicone Soft Tripod Robot via Uncertainty Compensation**

G. Zheng  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2801-2807, DOI: [10.1109/LRA.2020.2974714](https://doi.org/10.1109/LRA.2020.2974714)

### **Grasp It Like a Pro: Grasp of Unknown Objects With Robotic Hands Based on Skilled Human Expertise**

C. Gabellieri; F. Angelini; V. Arapi; A. Palleschi; M. G. Catalano; G. Grioli; L. Pallottino; A. Bicchi; M. Bianchi; M. Garabini  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2808-2815, DOI: [10.1109/LRA.2020.2974391](https://doi.org/10.1109/LRA.2020.2974391)

### **Scene Compliant Trajectory Forecast With Agent-Centric Spatio-Temporal Grids**

D. Ridel; N. Deo; D. Wolf; M. Trivedi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2816-2823, DOI: [10.1109/LRA.2020.2974393](https://doi.org/10.1109/LRA.2020.2974393)

### **Stiffness Imaging With a Continuum Appendage: Real-Time Shape and Tip Force Estimation From Base Load Readings**

S. M. H. Sadati; A. Shiva; N. Herzig; C. D. Rucker; H. Hauser; I. D. Walker; C. Bergeles; K. Althoefer; T. Nanayakkara  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2824-2831, DOI: [10.1109/LRA.2020.2972790](https://doi.org/10.1109/LRA.2020.2972790)

### **SOLAR-GP: Sparse Online Locally Adaptive Regression Using Gaussian Processes for Bayesian Robot Model Learning and Control**

B. Wilcox; M. C. Yip  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2832-2839, DOI: [10.1109/LRA.2020.2974432](https://doi.org/10.1109/LRA.2020.2974432)

### **Mine Tunnel Exploration Using Multiple Quadrupedal Robots**

I. D. Miller; F. Cladera; A. Cowley; S. S. Shivakumar; E. S. Lee; L. Jarin-Lipschitz; A. Bhat; N. Rodrigues; A. Zhou; A. Cohen; A. Kulkarni; J. Laney; C. J. Taylor; V. Kumar  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2840-2847, DOI: [10.1109/LRA.2020.2972872](https://doi.org/10.1109/LRA.2020.2972872)

### **Collaborative Human-Robot Framework for Delicate Sanding of Complex Shape Surfaces**

B. Maric; A. Mutka; M. Orsag  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2848-2855, DOI: [10.1109/LRA.2020.2969951](https://doi.org/10.1109/LRA.2020.2969951)

**Robot Risk-Awareness by Formal Risk Reasoning and Planning**

X. Xiao; J. Dufek; R. R. Murphy  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2856-2863, DOI: [10.1109/LRA.2020.2974434](https://doi.org/10.1109/LRA.2020.2974434)

**Model-Based Generalization Under Parameter Uncertainty Using Path Integral Control**

I. Abraham; A. Handa; N. Ratliff; K. Lowrey; T. D. Murphey; D. Fox  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2864-2871, DOI: [10.1109/LRA.2020.2972836](https://doi.org/10.1109/LRA.2020.2972836)

**Fast Planning Over Roadmaps via Selective Densification**

B. Saund; D. Berenson  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2873-2880, DOI: [10.1109/LRA.2020.2972820](https://doi.org/10.1109/LRA.2020.2972820)

**Performance Indicators for Wheeled Robots Traversing Obstacles**

W. Nowac; F. González; S. MacMahon; J. Kövecses  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2881-2888, DOI: [10.1109/LRA.2020.2974431](https://doi.org/10.1109/LRA.2020.2974431)

**Jamming-Free Immobilizing Grasps Using Dual-Friction Robotic Fingertips**

Y. Golan; A. Shapiro; E. Rimon  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2889-2896, DOI: [10.1109/LRA.2020.2972883](https://doi.org/10.1109/LRA.2020.2972883)

**MPC-Net: A First Principles Guided Policy Search**

J. Carius; F. Farshidian; M. Hutter  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2897-2904, DOI: [10.1109/LRA.2020.2974653](https://doi.org/10.1109/LRA.2020.2974653)

**Optimization-Based Posture Generation for Whole-Body Contact Motion by Contact Point Search on the Body Surface**

M. Murooka; K. Okada; M. Inaba  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2905-2912, DOI: [10.1109/LRA.2020.2974689](https://doi.org/10.1109/LRA.2020.2974689)

**Magnetic Milli-Robot Swarm Platform: A Safety Barrier Certificate Enabled, Low-Cost Test Bed**

A. Hsu; H. Zhao; M. Gaudreault; A. W. Foy; R. Pelrine  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2913-2920, DOI: [10.1109/LRA.2020.2974713](https://doi.org/10.1109/LRA.2020.2974713)

**Localization of Inspection Device Along Belt Conveyors With Multiple Branches Using Deep Neural Networks**

A. Y. Yasutomi; H. Enoki  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2921-2928, DOI: [10.1109/LRA.2020.2974709](https://doi.org/10.1109/LRA.2020.2974709)

**Multi-Agent Formation Control Based on Distributed Estimation With Prescribed Performance**

C. J. Stamouli; C. P. Bechlioulis; K. J. Kyriakopoulos  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2929-2934, DOI: [10.1109/LRA.2020.2970574](https://doi.org/10.1109/LRA.2020.2970574)

**Ambiguity in Sequential Data: Predicting Uncertain Futures With Recurrent Models**

A. Berlati; O. Scheel; L. D. Stefano; F. Tombari  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2935-2942, DOI: [10.1109/LRA.2020.2974716](https://doi.org/10.1109/LRA.2020.2974716)

**Deep Neural Network Approach in Robot Tool Dynamics Identification for Bilateral Teleoperation**

H. Su; W. Qi; C. Yang; J. Sandoval; G. Ferrigno; E. D. Momi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2943-2949, DOI: [10.1109/LRA.2020.2974445](https://doi.org/10.1109/LRA.2020.2974445)

**Learning Fast Adaptation With Meta Strategy Optimization**

W. Yu; J. Tan; Y. Bai; E. Coumans; S. Ha  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2950-2957, DOI: [10.1109/LRA.2020.2974685](https://doi.org/10.1109/LRA.2020.2974685)

**Magnetically Actuated Simple Millirobots for Complex Navigation and Modular Assembly**

E. Al Khatib; A. Bhattacharjee; P. Razzaghi; L. W. Rogowski; M. J. Kim; Y. Hurmuzlu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2958-2965, DOI: [10.1109/LRA.2020.2974389](https://doi.org/10.1109/LRA.2020.2974389)

**A Multi-Level Optimization Framework for Simultaneous Grasping and Motion Planning**

S. Zimmermann; G. Hakimifard; M. Zamora; R. Poranne; S. Coros  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2966-2972, DOI: [10.1109/LRA.2020.2974684](https://doi.org/10.1109/LRA.2020.2974684)

**A Novel Adaptive Controller for Robot Manipulators Based on Active Inference**

C. Pezzato; R. Ferrari; C. H. Corbato  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2973-2980, DOI: [10.1109/LRA.2020.2974451](https://doi.org/10.1109/LRA.2020.2974451)

**Enhancing the Transparency by Onomatopoeia for Passivity-Based Time-Delayed Teleoperation**

Y. Zhu; T. Aoyama; Y. Hasegawa  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2981-2986, DOI: [10.1109/LRA.2020.2972896](https://doi.org/10.1109/LRA.2020.2972896)

**Object-Level Impedance Control for Dexterous In-Hand Manipulation**

M. Pfanne; M. Chalon; F. Stulp; H. Ritter; A. Albu-Schäffer  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2987-2994, DOI: [10.1109/LRA.2020.2974702](https://doi.org/10.1109/LRA.2020.2974702)

**An Ergonomic Shared Workspace Analysis Framework for the Optimal Placement of a Compact Master Control Console**

D. Zhang; J. Liu; A. Gao; G. Yang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:2995-3002, DOI: [10.1109/LRA.2020.2974428](https://doi.org/10.1109/LRA.2020.2974428)

**A High-Payload Proprioceptive Hybrid Robotic Gripper With Soft Origamic Actuators**

Y. Su; Z. Fang; W. Zhu; X. Sun; Y. Zhu; H. Wang; K. Tang; H. Huang; S. Liu; Z. Wang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3003-3010, DOI: [10.1109/LRA.2020.2974438](https://doi.org/10.1109/LRA.2020.2974438)

**Modeling, Optimization, and Experimentation of the ParaGripper for In-Hand Manipulation Without Parasitic Rotation**

H. Liu; L. Zhao; B. Siciliano; F. Ficuciello  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3011-3018, DOI: [10.1109/LRA.2020.2974419](https://doi.org/10.1109/LRA.2020.2974419)

**RLBench: The Robot Learning Benchmark & Learning Environment**

S. James; Z. Ma; D. R. Arrojo; A. J. Davison

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3019-3026, DOI: [10.1109/LRA.2020.2974707](https://doi.org/10.1109/LRA.2020.2974707)

**Spatial Scheduling of Informative Meetings for Multi-Agent Persistent Coverage**

R. N. Haksar; S. Trimpe; M. Schwager  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3027-3034, DOI: [10.1109/LRA.2020.2974715](https://doi.org/10.1109/LRA.2020.2974715)

**A Novel End-Effector Robot System Enabling to Monitor Upper-Extremity Posture During Robot-Aided Planar Reaching Movements**

Y. Hwang; S. Lee; J. Hong; J. Kim  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3035-3041, DOI: [10.1109/LRA.2020.2974453](https://doi.org/10.1109/LRA.2020.2974453)

**A Compact McKibben Muscle Based Bending Actuator for Close-to-Body Application in Assistive Wearable Robots**

M. Tschiersky; E. E. G. Hekman; D. M. Brouwer; J. L. Herder; K. Suzumori  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3042-3049, DOI: [10.1109/LRA.2020.2975732](https://doi.org/10.1109/LRA.2020.2975732)

**Safe and Fast Tracking on a Robot Manipulator: Robust MPC and Neural Network Control**

J. Nubert; J. Köhler; V. Berenz; F. Allgöwer; S. Trimpe  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3050-3057, DOI: [10.1109/LRA.2020.2975727](https://doi.org/10.1109/LRA.2020.2975727)

**Proposal and Prototyping of Self-Excited Pneumatic Actuator Using Automatic-Flow-Path-Switching-Mechanism**

K. Tani; H. Nabaie; G. Endo; K. Suzumori  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3058-3065, DOI: [10.1109/LRA.2020.2974448](https://doi.org/10.1109/LRA.2020.2974448)

**Differential Flatness Based Path Planning With Direct Collocation on Hybrid Modes for a Quadrotor With a Cable-Suspended Payload**

J. Zeng; P. Kotaru; M. W. Mueller; K. Sreenath  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3074-3081, DOI: [10.1109/LRA.2020.2972845](https://doi.org/10.1109/LRA.2020.2972845)

**Vibration-Based Multi-Axis Force Sensing: Design, Characterization, and Modeling**

W. Kuang; M. Yip; J. Zhang

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3082-3089, DOI: [10.1109/LRA.2020.2975726](https://doi.org/10.1109/LRA.2020.2975726)

**Development of Visible Manipulator With Multi-Gear Array Mechanism for Laparoscopic Surgery**

H. Wang; S. Wang; S. Zuo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3090-3097, DOI: [10.1109/LRA.2020.2975722](https://doi.org/10.1109/LRA.2020.2975722)

**Segmentation and Averaging of sEMG Muscle Activations Prior to Synergy Extraction**

Á. Costa-García; E. Iáñez; M. Sonoo; S. Okajima; H. Yamasaki; S. Ueda; S. Shimoda  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3106-3112, DOI: [10.1109/LRA.2020.2975729](https://doi.org/10.1109/LRA.2020.2975729)

**MFuseNet: Robust Depth Estimation With Learned Multiscopic Fusion**

W. Yuan; R. Fan; M. Y. Wang; Q. Chen  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3113-3120, DOI: [10.1109/LRA.2020.2974422](https://doi.org/10.1109/LRA.2020.2974422)

**Cooperative Human-Robot Grasping With Extended Contact Patches**

S. Marullo; M. Pozzi; D. Prattichizzo; M. Malvezzi  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3121-3128, DOI: [10.1109/LRA.2020.2975705](https://doi.org/10.1109/LRA.2020.2975705)

**A Tightly Coupled VLC-Inertial Localization System by EKF**

Q. Liang; M. Liu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3129-3136, DOI: [10.1109/LRA.2020.2975730](https://doi.org/10.1109/LRA.2020.2975730)

**Examining the Frictional Behavior of Primitive Contact Geometries for use as Robotic Finger Pads**

M. T. Leddy; A. M. Dollar  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3137-3144, DOI: [10.1109/LRA.2020.2974683](https://doi.org/10.1109/LRA.2020.2974683)

**Development of Backdrivable Servovalve With Feedback Spring for Enhanced Electro-Hydraulic Torque Actuator**

S. Nam; W. Lee; S. Yoo; K. Kim; W. K. Chung  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3145-3152, DOI: [10.1109/LRA.2020.2975728](https://doi.org/10.1109/LRA.2020.2975728)

**A General Framework for Uncertainty Estimation in Deep Learning**

A. Loquercio; M. Segù; D. Scaramuzza

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3153-3160, DOI: [10.1109/LRA.2020.2974682](https://doi.org/10.1109/LRA.2020.2974682)

**Cross-Drone Binocular Coordination for Ground Moving Target Tracking in Occlusion-Rich Scenarios**

Y. Chang; H. Zhou; X. Wang; L. Shen; T. Hu

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3161-3168, DOI: [10.1109/LRA.2020.2975713](https://doi.org/10.1109/LRA.2020.2975713)

**Coordinated Optical Tweezing and Manipulation of Multiple Microscopic Objects With Stochastic Perturbations**

Q. M. Ta; C. C. Cheah

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3169-3175, DOI: [10.1109/LRA.2020.2975721](https://doi.org/10.1109/LRA.2020.2975721)

**A Flapped Paddle-Fin for Improving Underwater Propulsive Efficiency of Oscillatory Actuation**

A. Simha; R. Gkliva; Ü. Kotta; M. Kruusmaa

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3176-3181, DOI: [10.1109/LRA.2020.2975747](https://doi.org/10.1109/LRA.2020.2975747)

**Quantifying Robot Localization Safety: A New Integrity Monitoring Method for Fixed-Lag Smoothing**

O. A. Hafez; G. D. Arana; M. Joerger; M. Spenko

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3182-3189, DOI: [10.1109/LRA.2020.2975769](https://doi.org/10.1109/LRA.2020.2975769)

**Passivity-Based Robust Compliance Control of Electro-Hydraulic Robot Manipulators With Joint Angle Limit**

W. Lee; S. Yoo; S. Nam; K. Kim; W. K. Chung

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3190-3197, DOI: [10.1109/LRA.2020.2975724](https://doi.org/10.1109/LRA.2020.2975724)

**A Hybrid Underwater Manipulator System With Intuitive Muscle-Level sEMG Mapping Control**

H. Zhong; Z. Shen; Y. Zhao; K. Tang; W. Wang; Z. Wang

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3198-3205, DOI: [10.1109/LRA.2020.2974700](https://doi.org/10.1109/LRA.2020.2974700)

**PointTrackNet: An End-to-End Network For 3-D Object Detection and Tracking From Point Clouds**

S. Wang; Y. Sun; C. Liu; M. Liu

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3206-3212, DOI: [10.1109/LRA.2020.2974392](https://doi.org/10.1109/LRA.2020.2974392)

**Gemini: A Compact Yet Efficient Bi-Copter UAV for Indoor Applications**

Y. Qin; W. Xu; A. Lee; F. Zhang

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3213-3220, DOI: [10.1109/LRA.2020.2974718](https://doi.org/10.1109/LRA.2020.2974718)

**A Sensorized Hybrid Gripper to Evaluate a Grasping Quality Based on a Largest Minimum Wrench**

W. Park; S. Seo; J. Oh; J. Bae

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3243-3250, DOI: [10.1109/LRA.2020.2976312](https://doi.org/10.1109/LRA.2020.2976312)

**Socially-Aware Reactive Obstacle Avoidance Strategy Based on Limit Cycle**

M. Boldrer; M. Andreetto; S. Divan; L. Palopoli; D. Fontanelli

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3251-3258, DOI: [10.1109/LRA.2020.2976302](https://doi.org/10.1109/LRA.2020.2976302)

**Experimental Evaluation and Characterization of Radioactive Source Effects on Robot Visual Localization and Mapping**

E. S. Lee; G. Loianno; D. Thakur; V. Kumar

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3259-3266, DOI: [10.1109/LRA.2020.2975723](https://doi.org/10.1109/LRA.2020.2975723)

**Autonomous Navigation in Inclement Weather Based on a Localizing Ground Penetrating Radar**

T. Ort; I. Gilitschenski; D. Rus

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3267-3274, DOI: [10.1109/LRA.2020.2976310](https://doi.org/10.1109/LRA.2020.2976310)

**Plucking Motions for Tea Harvesting Robots Using Probabilistic Movement Primitives**

K. Motokura; M. Takahashi; M. Ewerton; J. Peters

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3275-3282, DOI: [10.1109/LRA.2020.2976314](https://doi.org/10.1109/LRA.2020.2976314)

**Windowed Bundle Adjustment Framework for Unsupervised Learning of Monocular Depth Estimation With U-Net Extension and Clip Loss**

L. Zhou; M. Kaess

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3283-3290, DOI: [10.1109/LRA.2020.2976301](https://doi.org/10.1109/LRA.2020.2976301)

**A 1 mm-Thick Miniatured Mobile Soft Robot With Mechanosensation and Multimodal Locomotion**

Z. Liu; J. Liu; H. Wang; X. Yu; K. Yang; W. Liu; S. Nie; W. Sun; Z. Xie; B. Chen; S. Liang; Y. Guan; L. Wen

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3291-3298, DOI: [10.1109/LRA.2020.2976306](https://doi.org/10.1109/LRA.2020.2976306)

**Distributed Proprioception of 3D Configuration in Soft, Sensorized Robots via Deep Learning**

R. L. Truby; C. D. Santina; D. Rus

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3299-3306, DOI: [10.1109/LRA.2020.2976320](https://doi.org/10.1109/LRA.2020.2976320)

**Flow-Motion and Depth Network for Monocular Stereo and Beyond**

K. Wang; S. Shen

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3307-3314, DOI: [10.1109/LRA.2020.2975750](https://doi.org/10.1109/LRA.2020.2975750)

**Optimal Design of a Novel 3-DOF Orientational Parallel Mechanism for Pelvic Assistance on a Wheelchair: An Approach Based on Kinematic Geometry and Screw Theory**

C. Ophaswongse; S. K. Agrawal

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3315-3322, DOI: [10.1109/LRA.2020.2975720](https://doi.org/10.1109/LRA.2020.2975720)

**A Vision-Based Soft Somatosensory System for Distributed Pressure and Temperature Sensing**

C. Yu; L. Lindenroth; J. Hu; J. Back; G. Abrahams; H. Liu

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3323-3329, DOI: [10.1109/LRA.2020.2974649](https://doi.org/10.1109/LRA.2020.2974649)

**Convex Controller Synthesis for Robot Contact**

H. Pham; Q. Pham

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3330-3337, DOI: [10.1109/LRA.2020.2975725](https://doi.org/10.1109/LRA.2020.2975725)

**Multi-Robot Task and Motion Planning With Subtask Dependencies**

J. Motes; R. Sandström; H. Lee; S. Thomas; N. M. Amato  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3338-3345, DOI: [10.1109/LRA.2020.2976329](https://doi.org/10.1109/LRA.2020.2976329)

**Learning Task-Oriented Grasping From Human Activity Datasets**

M. Kovic; D. Kragic; J. Bohg  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3352-3359, DOI: [10.1109/LRA.2020.2975706](https://doi.org/10.1109/LRA.2020.2975706)

**Scalable Cooperative Transport of Cable-Suspended Loads With UAVs Using Distributed Trajectory Optimization**

B. E. Jackson; T. A. Howell; K. Shah; M. Schwager; Z. Manchester  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3368-3374, DOI: [10.1109/LRA.2020.2975956](https://doi.org/10.1109/LRA.2020.2975956)

**Creating a Soft Tactile Skin Employing Fluorescence Based Optical Sensing**

F. De Chiara; S. Wang; H. Liu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3375-3381, DOI: [10.1109/LRA.2020.2976303](https://doi.org/10.1109/LRA.2020.2976303)

**Real-Time Soft Body 3D Proprioception via Deep Vision-Based Sensing**

R. Wang; S. Wang; S. Du; E. Xiao; W. Yuan; C. Feng  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3382-3389, DOI: [10.1109/LRA.2020.2975709](https://doi.org/10.1109/LRA.2020.2975709)

**Model-Based Pose Control of Inflatable Eversion Robot With Variable Stiffness**

A. Ataka; T. Abrar; F. Putzu; H. Godaba; K. Althoefer  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3398-3405, DOI: [10.1109/LRA.2020.2976326](https://doi.org/10.1109/LRA.2020.2976326)

**Simple, Low-Hysteresis, Foldable, Fabric Pneumatic Artificial Muscle**

N. D. Naclerio; E. W. Hawkes  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2

Pages:3406-3413, DOI: [10.1109/LRA.2020.2976309](https://doi.org/10.1109/LRA.2020.2976309)

### **Planning With Uncertain Specifications (PUnS)**

A. Shah; S. Li; J. Shah

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3414-3421, DOI: [10.1109/LRA.2020.2977217](https://doi.org/10.1109/LRA.2020.2977217)

### **Precision Robotic Leaping and Landing Using Stance-Phase Balance**

J. K. Yim; B. R. P. Singh; E. K. Wang; R. Featherstone; R. S. Fearing

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3422-3429, DOI: [10.1109/LRA.2020.2976597](https://doi.org/10.1109/LRA.2020.2976597)

### **PCA-Based Visual Servoing Using Optical Coherence Tomography**

B. Dahroug; B. Tamadazte; N. Andreff

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3430-3437, DOI: [10.1109/LRA.2020.2977259](https://doi.org/10.1109/LRA.2020.2977259)

### **Accurate Dynamic Modeling of Twisted String Actuators Accounting for String Compliance and Friction**

S. Nedelchev; I. Gaponov; J. Ryu

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3438-3443, DOI: [10.1109/LRA.2020.2970651](https://doi.org/10.1109/LRA.2020.2970651)

### **2D Estimation of Velocity Relative to Water and Tidal Currents Based on Differential Pressure for Autonomous Underwater Vehicles**

C. Meurer; J. F. Fuentes-Pérez; K. Schwarzwälder; M. Ludvigsen; A. J. Sørensen;

M. Kruusmaa

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3444-3451, DOI: [10.1109/LRA.2020.2976318](https://doi.org/10.1109/LRA.2020.2976318)

### **Learning Pugachev's Cobra Maneuver for Tail-Sitter UAVs Using Acceleration Model**

W. Xu; F. Zhang

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3452-3459, DOI: [10.1109/LRA.2020.2976323](https://doi.org/10.1109/LRA.2020.2976323)

### **Adaptive Integral Inverse Kinematics Control for Lightweight Compliant Manipulators**

C. R. de Cos; J. Á. Acosta; A. Ollero

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3468-3474, DOI: [10.1109/LRA.2020.2977261](https://doi.org/10.1109/LRA.2020.2977261)

**Detachable Body: The Impact of Binocular Disparity and Vibrotactile Feedback in Co-Presence Tasks**

Y. Iwasaki; K. Ando; S. Iizuka; M. Kitazaki; H. Iwata  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3477-3484, DOI: [10.1109/LRA.2020.2977320](https://doi.org/10.1109/LRA.2020.2977320)

**Spatiotemporal Relationship Reasoning for Pedestrian Intent Prediction**

B. Liu; E. Adeli; Z. Cao; K. Lee; A. Shenoi; A. Gaidon; J. C. Nibbles  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3485-3492, DOI: [10.1109/LRA.2020.2976305](https://doi.org/10.1109/LRA.2020.2976305)

**Time Generalization of Trajectories Learned on Articulated Soft Robots**

F. Angelini; R. Mengacci; C. D. Santina; M. G. Catalano; M. Garabini; A. Bicchi; G. Grioli  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3493-3500, DOI: [10.1109/LRA.2020.2977268](https://doi.org/10.1109/LRA.2020.2977268)

**Federated Imitation Learning: A Novel Framework for Cloud Robotic Systems With Heterogeneous Sensor Data**

B. Liu; L. Wang; M. Liu; C. Xu  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3509-3516, DOI: [10.1109/LRA.2020.2976321](https://doi.org/10.1109/LRA.2020.2976321)

**Bilateral Haptic Collaboration for Human-Robot Cooperative Tasks**

G. Salvietti; M. Z. Iqbal; D. Prattichizzo  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3517-3524, DOI: [10.1109/LRA.2020.2975715](https://doi.org/10.1109/LRA.2020.2975715)

**Sim-To-Real Transfer Learning Approach for Tracking Multi-DOF Ankle Motions Using Soft Strain Sensors**

H. Park; J. Cho; J. Park; Y. Na; J. Kim  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3525-3532, DOI: [10.1109/LRA.2020.2979631](https://doi.org/10.1109/LRA.2020.2979631)

**Learning One-Shot Imitation From Humans Without Humans**

A. Bonardi; S. James; A. J. Davison  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3533-3539, DOI: [10.1109/LRA.2020.2977835](https://doi.org/10.1109/LRA.2020.2977835)

**Learning When to Trust a Dynamics Model for Planning in Reduced State Spaces**

D. McConachie; T. Power; P. Mitrano; D. Berenson  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3540-3547, DOI: [10.1109/LRA.2020.2972858](https://doi.org/10.1109/LRA.2020.2972858)

**Model-Based Reinforcement Learning for Physical Systems Without Velocity and Acceleration Measurements**

A. Dalla Libera; D. Romeres; D. K. Jha; B. Yezaur; D. Nikovski  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3548-3555, DOI: [10.1109/LRA.2020.2977255](https://doi.org/10.1109/LRA.2020.2977255)

**Exploiting Singular Configurations for Controllable, Low-Power Friction Enhancement on Unmanned Ground Vehicles**

A. Foris; N. Wagener; B. Boots; A. Mazumdar  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3556-3563, DOI: [10.1109/LRA.2020.2977266](https://doi.org/10.1109/LRA.2020.2977266)

**A Pneumatic/Cable-Driven Hybrid Linear Actuator With Combined Structure of Origami Chambers and Deployable Mechanism**

Z. Zhang; G. Chen; H. Wu; L. Kong; H. Wang  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3564-3571, DOI: [10.1109/LRA.2020.2976324](https://doi.org/10.1109/LRA.2020.2976324)

**Estimation With Fast Feature Selection in Robot Visual Navigation**

H. K. Mousavi; N. Motee  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3572-3579, DOI: [10.1109/LRA.2020.2974654](https://doi.org/10.1109/LRA.2020.2974654)

**Semantic Segmentation With Unsupervised Domain Adaptation Under Varying Weather Conditions for Autonomous Vehicles**

Ö. Erkent; C. Laugier  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3580-3587, DOI: [10.1109/LRA.2020.2978666](https://doi.org/10.1109/LRA.2020.2978666)

**PneuAct-II: Hybrid Manufactured Electromagnetically Stealth Pneumatic Stepper Actuator**

F. S. Farimani; M. Mojarradi; E. Hekman; S. Misra

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3588-3593, DOI: [10.1109/LRA.2020.2974652](https://doi.org/10.1109/LRA.2020.2974652)

**GaitMesh: Controller-Aware Navigation Meshes for Long-Range Legged Locomotion Planning in Multi-Layered Environments**

M. Brandão; O. B. Aladag; I. Havoutis

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3596-3603, DOI: [10.1109/LRA.2020.2979628](https://doi.org/10.1109/LRA.2020.2979628)

**Simultaneous Control Framework for Humanoid Tracking Human Movement With Interacting Wearable Assistive Device**

T. Ito; K. Ayusawa; E. Yoshida; H. Kobayashi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3604-3611, DOI: [10.1109/LRA.2020.2979663](https://doi.org/10.1109/LRA.2020.2979663)

**Safety Augmented Value Estimation From Demonstrations (SAVED): Safe Deep Model-Based RL for Sparse Cost Robotic Tasks**

B. Thananjeyan; A. Balakrishna; U. Rosolia; F. Li; R. McAllister; J. E. Gonzalez; S.

Levine; F. Borrelli; K. Goldberg

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3612-3619, DOI: [10.1109/LRA.2020.2976272](https://doi.org/10.1109/LRA.2020.2976272)

**A Real-Time Approach for Chance-Constrained Motion Planning With Dynamic Obstacles**

M. Castillo-Lopez; P. Ludivig; S. A. Sajadi-Alamdari; J. L. Sanchez-Lopez; M. A.

Olivares-Mendez; H. Voos

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3620-3625, DOI: [10.1109/LRA.2020.2975759](https://doi.org/10.1109/LRA.2020.2975759)

**Rolling in the Deep – Hybrid Locomotion for Wheeled-Legged Robots Using Online Trajectory Optimization**

M. Bjelonic; P. K. Sankar; C. D. Bellicoso; H. Vallery; M. Hutter

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3626-3633, DOI: [10.1109/LRA.2020.2979661](https://doi.org/10.1109/LRA.2020.2979661)

**Localization of Ionizing Radiation Sources by Cooperating Micro Aerial Vehicles With Pixel Detectors in Real-Time**

P. Štibinger; T. Báča; M. Saska

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3634-3641, DOI: [10.1109/LRA.2020.2978456](https://doi.org/10.1109/LRA.2020.2978456)

**Guided Constrained Policy Optimization for Dynamic Quadrupedal Robot Locomotion**

S. Gangapurwala; A. Mitchell; I. Havoutis

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3642-3649, DOI: [10.1109/LRA.2020.2979656](https://doi.org/10.1109/LRA.2020.2979656)

**An Open Torque-Controlled Modular Robot Architecture for Legged Locomotion Research**

F. Grimminger; A. Meduri; M. Khadiv; J. Viereck; M. Wüthrich; M. Naveau; V.

Berenz; S. Heim; F. Widmaier; T. Flayols; J. Fiene; A. Badri-Spröwitz; L. Righetti

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3650-3657, DOI: [10.1109/LRA.2020.2976639](https://doi.org/10.1109/LRA.2020.2976639)

**The Soft-Landing Problem: Minimizing Energy Loss by a Legged Robot Impacting Yielding Terrain**

D. J. Lynch; K. M. Lynch; P. B. Umbanhowar

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3658-3665, DOI: [10.1109/LRA.2020.2977260](https://doi.org/10.1109/LRA.2020.2977260)

**A Computational Framework for Designing Skilled Legged-Wheeled Robots**

M. Geilinger; S. Winberg; S. Coros

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3674-3681, DOI: [10.1109/LRA.2020.2978444](https://doi.org/10.1109/LRA.2020.2978444)

**Learning Constraints From Locally-Optimal Demonstrations Under Cost Function Uncertainty**

G. Chou; N. Ozay; D. Berenson

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 2

Pages:3682-3690, DOI: [10.1109/LRA.2020.2974427](https://doi.org/10.1109/LRA.2020.2974427)

**Nonholonomic Virtual Constraint Design for Variable-Incline Bipedal Robotic Walking**

J. C. Horn; A. Mohammadi; K. A. Hamed; R. D. Gregg

IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3691-3698, DOI: [10.1109/LRA.2020.2977263](https://doi.org/10.1109/LRA.2020.2977263)

**DeepGait: Planning and Control of Quadrupedal Gaits Using Deep Reinforcement Learning**

V. Tsounis; M. Alge; J. Lee; F. Farshidian; M. Hutter  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3699-3706, DOI: [10.1109/LRA.2020.2979660](https://doi.org/10.1109/LRA.2020.2979660)

**Optimal Landing Strategy for Two-Mass Hopping Leg With Natural Dynamics**

C. Lee; S. Oh  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3707-3714, DOI: [10.1109/LRA.2020.2979633](https://doi.org/10.1109/LRA.2020.2979633)

**Towards More Possibilities: Motion Planning and Control for Hybrid Locomotion of Wheeled-Legged Robots**

J. Sun; Y. You; X. Zhao; A. H. Adiwahono; C. M. Chew  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3723-3730, DOI: [10.1109/LRA.2020.2979626](https://doi.org/10.1109/LRA.2020.2979626)

**LQR-Assisted Whole-Body Control of a Wheeled Bipedal Robot With Kinematic Loops**

V. Klemm; A. Morra; L. Gulich; D. Mannhart; D. Rohr; M. Kamel; Y. de Viragh; R. Siegwart  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 2  
Pages:3745-3752, DOI: [10.1109/LRA.2020.2979625](https://doi.org/10.1109/LRA.2020.2979625)

**A Wall-Mounted Robot Arm Equipped With a 4-DOF Yaw-Pitch-Yaw-Pitch Counterbalance Mechanism**

J. Min; D. Kim; J. Song  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 3  
Pages:3768-3774, DOI: [10.1109/LRA.2020.2975731](https://doi.org/10.1109/LRA.2020.2975731)

**Multi-Modal Transfer Learning for Grasping Transparent and Specular Objects**

T. Weng; A. Pallankize; Y. Tang; O. Kroemer; D. Held  
IEEE Robotics and Automation Letters  
Year: 2020, Volume: 5, Issue: 3  
Pages:3791-3798, DOI: [10.1109/LRA.2020.2974686](https://doi.org/10.1109/LRA.2020.2974686)

**Design of an Inflatable Wrinkle Actuator With Fast Inflation/Deflation Responses for Wearable Suits**

J. Park; J. Choi; S. J. Kim; K. Seo; J. Kim

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:3799-3805, DOI: [10.1109/LRA.2020.2976299](https://doi.org/10.1109/LRA.2020.2976299)

**Modeling of Architectural Components for Large-Scale Indoor Spaces From Point Cloud Measurements**

G. Lim; Y. Oh; D. Kim; C. Jun; J. Kang; N. Doh

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:3830-3837, DOI: [10.1109/LRA.2020.2976327](https://doi.org/10.1109/LRA.2020.2976327)

**DIGIT: A Novel Design for a Low-Cost Compact High-Resolution Tactile Sensor With Application to In-Hand Manipulation**

M. Lambeta; P. Chou; S. Tian; B. Yang; B. Maloon; V. R. Most; D. Stroud; R.

Santos; A. Byagowi; G. Kammerer; D. Jayaraman; R. Calandra

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:3838-3845, DOI: [10.1109/LRA.2020.2977257](https://doi.org/10.1109/LRA.2020.2977257)

**Model and Data Based Approaches to the Control of Tensegrity Robots**

R. Wang; R. Goyal; S. Chakravorty; R. E. Skelton

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:3846-3853, DOI: [10.1109/LRA.2020.2979891](https://doi.org/10.1109/LRA.2020.2979891)

**IMU-Based Inertia Estimation for a Quadrotor Using Newton-Euler Dynamics**

J. Svacha; J. Paulos; G. Loiano; V. Kumar

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:3861-3867, DOI: [10.1109/LRA.2020.2976308](https://doi.org/10.1109/LRA.2020.2976308)

**CorsNet: 3D Point Cloud Registration by Deep Neural Network**

A. Kurobe; Y. Sekikawa; K. Ishikawa; H. Saito

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:3960-3966, DOI: [10.1109/LRA.2020.2970946](https://doi.org/10.1109/LRA.2020.2970946)

**Self-Excited Vibration Valve That Induces Traveling Waves in Pneumatic Soft Mobile Robots**

Y. Miyaki; H. Tsukagoshi

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:4133-4139, DOI: [10.1109/LRA.2020.2978455](https://doi.org/10.1109/LRA.2020.2978455)

**Untethered Flight of an At-Scale Dual-Motor Hummingbird Robot With Bio-Inspired Decoupled Wings**

Z. Tu; F. Fei; X. Deng

IEEE Robotics and Automation Letters

Year: 2020, Volume: 5, Issue: 3

Pages:4194-4201, DOI: [10.1109/LRA.2020.2974717](https://doi.org/10.1109/LRA.2020.2974717)

**Hysteresis Compensator with Learning-Based Hybrid Joint Angle Estimation for Flexible Surgery Robots**

D. Baek; J. Seo; J. Kim; D. Kwon

IEEE Robotics and Automation Letters

Year: 2020, Volume: PP, Issue: 99

Pages:1-1, DOI: [10.1109/LRA.2020.2972821](https://doi.org/10.1109/LRA.2020.2972821)

**Model predictive control with obstacle avoidance for inertia actuated AFM probes inside a scanning electron microscope**

S. Liang; M. Boudaoud; P. Morin; J. Cailliez; B. Cagneau; W. Rong; S. Regnier

IEEE Robotics and Automation Letters

Year: 2020, Volume: PP, Issue: 99

Pages:1-1, DOI: [10.1109/LRA.2020.2974388](https://doi.org/10.1109/LRA.2020.2974388)

**HRP-4 walks on Soft Feet**

M. G. Catalano; I. Frizza; C. Morandj; G. Grioli; K. Ayusawa; T. Ito; G. Venture

IEEE Robotics and Automation Letters

Year: 2020, Volume: PP, Issue: 99

Pages:1-1, DOI: [10.1109/LRA.2020.2979630](https://doi.org/10.1109/LRA.2020.2979630)