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Maryellen L. Giger

Nico Karssemeijer

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Introduction

Recognizing the tremendous growth and breadth of computer-aided detection/computer-aided diagnosis at the SPIE Medical Imaging meetings, leadership decided to create a separate conference for CAD presentations. After an exciting and quite successful first year at SPIE Medical Imaging 2007, SPIE Medical Imaging 2008 welcomed again the CAD Conference. For the conference, original papers are invited on all aspects related to CAD, including theory, overall system development, database construction, feature extraction, classifier design, workstation design, and evaluation.

In 2008, the CAD Conference received 165 abstracts and offered acceptance to approximately 79%. Abstract submissions came from various countries including the USA, Japan, Germany, the Netherlands, South Korea, Brazil, India, Taiwan, United Kingdom, Australia, Canada, France, Ireland, Italy, Singapore, Spain, Tunisia, and Turkey. The presentations spanned three full days, and included oral presentations, posters, a keynote address, and two workshops.

Prof. Dr. Heinz-Otto Peitgen from MeVis Research GmbH, from the University of Bremen in Germany, and from Florida Atlantic University gave the conference keynote "Clinical relevance of computer-aided diagnosis and visualization." Professor Peitgen presented mathematical approaches to gain better understanding of liver structure, and demonstrated the successful translation of computer-aided surgery tools from the laboratory into the clinical arena, noting the importance of interactions of imaging specialists with the surgeons.

In our Tuesday evening CAD workshop, an expanded version of our 2007 workshop, twenty-five research groups interactively presented their real-time demonstrations of CAD workstations. The year's workshop was organized by Micheal McNitt-Gray, Bram van Ginneken, Maryellen Giger, and Nico Karssemeijer. CAD applications ranged from detection and characterization aids in breast, lung, and colon imaging to analysis in retinopathy. In addition, discussions and results from the first online assessment "competition," that of mammographic mass characterization, were given by Professor McNitt-Gray, illustrating the importance of database clarification and source, scoring methods, database size limitations, and reporting criteria. Bram van Ginneken, whose assessment website enabled this workshop, will lead the assessment "competitions" for 2009 on topics of lung nodule detection on thoracic CT and computer-aided diagnosis of retinoapathy.

Our Thursday afternoon workshop given by Robert Nishikawa (University of Chicago) and Susan Astley (University of Manchester, UK), focused on "Critical Issues in Adapting CAD into Clinical Practice." Professor Nishikawa presented a thorough critical review of published clinical studies on CADE for mammography,

noting their similarities and limitations. Professor Astley discussed the advantages and disadvantages of CADe implementation in the UK. A clear message was that CAD is a very promising but still emerging field for medical image interpretation.

The high level of participation in all the venues of the CAD Conference gives a clear indication of the need for such a conference as well as acknowledgment of the growing field.

Maryellen L. Giger
Nico Karssemeijer

In Memoriam

Sam Dwyer

1932–2008



Inspirational planner for SPIE Medical Imaging symposia and chair of 15 conferences from 1983 to 1996

Sam Dwyer was a leading light in the swift growth of the field of medical imaging. At this 2008 Medical Imaging symposium, several colleagues expressed their appreciation of his professional achievements and the legacy of his contributions.

Andre Duerinckx recalls Sam's first big step into the limelight. "Sam chaired the Second International PACS meeting sponsored by SPIE in 1983. He stepped in when my professional direction shifted and I could not continue. Over the following years Sam became a leading force in the development of this new science and technology as the conferences developed and grew."

"He had an ability to predict important technology trends in medical imaging," says Steven Horii, a long-time SPIE Medical Imaging contributor and past conference chair.

Another past Medical Imaging conference chair with years of experience, Roger Schneider elaborates, "The growth of the initial conferences was phenomenal. They quickly expanded and outgrew several facilities. Topic areas increased. For example, we had been dealing with perception in sessions on image statistics. Sam first suggested that the field of perception theory and experiment was expanding so rapidly that it deserved its own conference. We also added conferences on image processing hardware, display, functional imaging, and special topics in ultrasound transducers."

"Sam was a true pioneer in our field," continues Schneider. "He was one of the first to envision the impact of digital technology on the storage, retrieval, communication, and

display of medical images, and one of the most active early explorers of the possibilities. He led the PACS conference into the merger with SPIE's image science conference to form the current Medical Imaging Symposium which many consider to be the premiere technical program on medical imaging in the world."

Murray Loew, another past conference chair, adds his observation, "Sam's academic, industrial, and clinical experience provided the perspective that enabled him to set priorities and give advice that helped many of us to make our own contributions. We all benefited greatly from his insights and his practical approach."

Schneider agrees. "Through all, Sam was an excellent partner and leader, calm, gentle yet persuasive, always congenially nudging everyone toward a better future. His ambitions were not for himself, but for the mutual enterprise. He was a very enthusiastic mentor and supporter of students and researchers new to the field without any concern for the possibility that their work might compete with his and was himself a superbly competent contributor."

An example of this is illustrated by John Strauss." Already well accomplished at the time of our first meeting, Sam made the time to take an eager but inexperienced student under his wing. I was not an 'assigned' grad student or research assistant from the University to which he had an obligation. I was a product manager from a vendor-partner. Over the years, from answering technical questions in an understandable way, to providing unassuming career guidance, as well as a sympathetic ear to the challenges of fatherhood or life's many challenges and struggles, Sam was always there for me."

"There are many things about Sam Dwyer that I recall with great fondness, like his always friendly and enthusiastic manner. His advice led me to my years of satisfying work on the ACR-NEMA Committee," adds Horii.

All agree that Sam had many other admirable traits. His wit and sense of humor were legendary, as one of Schneider's favorite memories illustrates. "At the opening of one conference Sam announced, from the podium, that it was the birthday of an important attendee. He said SPIE had requested that the Blue Angels do a flyover—but they already had something scheduled. As a substitute birthday recognition, Sam suggested we take our morning coffee break out on the terrace and watch the landscaping crew circle the flagpole on their riding lawnmowers."

Strauss describes the footprint left by Sam, "While Sam left a legacy through his professional accomplishments, perhaps more lasting is the heritage of leadership he has left behind. He felt it his obligation to pass on his knowledge and wisdom to the next generation, and I was blessed as a recipient. I have and will continue to honor Sam by sharing with those that come after me."

Sam Dwyer was a person of rare quality who will be sorely missed. His name has a permanent place in the annals of medical imaging, and his contributions continue in the flourishing growth of knowledge presented and discussed in the annual Medical Imaging conferences.