



Engineers Nominated By IEEE / IEEE - USA, Society Chair Of National Engineers Week 2004.

Wing Lillean Lai

Wing Lillean Lai, a technology reliability engineer with the IBM Microelectronics Division in Essex Junction, Vermont, is responsible for the reliability qualifications of state-of-the-art ultra-thin gate dielectrics for the next generation semiconductor technologies.



Lai is researching physical and electrical properties of silicon dioxide and the silicon/silicon dioxide interface of the complementary-metal-oxide-semiconductor devices. She has examined the electrical properties of some of the thinnest dielectric films ever grown and has established the groundwork for their applications in microelectronics devices. Lai develops and implements qualification plans, strategies and data analysis software with the latest dielectric reliability models, physics and mathematics. She has authored or co-authored more than 20 technical journals and conference papers and co-authored an invention disclosure. Lai participates in National Engineers Week student awareness programs and volunteers at the Burlington Emergency Shelter, Ronald McDonald House and Habitat for Humanity. She is a core member of the Vermont Asian Network Group for diversity awareness at IBM.

winglai@us.ibm.com

Michelle Zhou

Michelle Zhou, a research manager at the IBM T. J. Watson Research Center in Hawthorne, New York, leads a team of researchers and engineers in developing novel technologies that may revolutionize how we use computers to seek information.



Zhou's challenge is to enable users to express their information requests flexibly and naturally using multiple modalities, including speech, text/Graphical User Interface. The computer, on the other hand, is capable of capturing the fine-grained semantics of rich contextual information (e.g., data semantics and conversation history) and utilizes it to interpret the meanings of user inputs, including those abbreviated and ambiguous ones. This componentized framework presents an end-to-end extensible integration blueprint for building a class of information-seeking applications, spanning across real-estate to travel industries and a platform for leveraging and promoting technology standards.

Zhou has also been very active in technical communities both within and outside of IBM. Zhou has presented her work at a

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number of prestigious conferences and has been invited to speak about her work at various organizations and universities. She is the current chair of Multimedia PIC (professional impact community) at IBM, and served as the IBM campus liaison for Columbia University to help promote woman engineers. She has also served as conference co-chair and program committee member for various conferences. In her spare time, she also mentors local high school girls who participate in Intel Science Talent Search.

mzhou@us.ibm.com

Jaume Anguera, Ph.D.

Jaume Anguera, Ph.D., manager of research and development at Fractus and assistant professor at Universitat Ramon Llull in Barcelona, Spain, is researching fractal, wideband, multiband, and high-directivity printed antennas.



As a senior researcher at Sistemas Radiantes in Madrid, Anguera designed a dual-frequency dual-polarized fractal-shaped microstrip patch array for mobile communications systems. Currently with Fractus he leads projects on fractal-shaped antennas for base station systems, working in the design of multiband monopoles, dual-polarized microcell antennas, microstrip patch arrays, feeding network architectures, broadband matching networks, high isolation techniques and array pattern synthesis with genetic algorithms. He was a member of the fractal team that in 1998 received the European Information Technology Grand Prize from the European Council for Applied Science and Engineering for the fractal-shaped antenna application to cellular telephony.

Anguera became assistant professor in 1999 at the Department of Signal Theory and Communications of the Universitat Ramon Llull where he is teaching antenna theory and preparing an e-learning antenna course. He holds 12 patents on fractal and other related antennas and has authored or co-authored more than 40 journal articles. He served as session chair of the 2003 International Symposium on Antennas and Propagation held in Columbus, OH, and is on the Scientific Committee of the 27th European Space Agency Antenna Technology Workshop on Innovative Periodic Antennas to be held in Santiago de Compostela, Spain this year. He is also a reviewer of the new IEEE Region 9 electronic magazine.

Jaume.anguera@fractus.com

Maria Ebling

Maria Ebling, a research manager at the IBM T. J. Watson Research Center in Hawthorne, New York, leads a team that builds middleware to support context-aware computing, such as location-based services, in ways that protect user privacy.



Ebling is responsible for designing a system for accessing, aggregating, and filtering data from a heterogeneous and dynamic set of pervasive data sources. Key technical challenges in this work include building a system that can scale to the large number of expected data sources and users,

and handling the failures inherent in mobile computing applications. Beyond the technical challenges, Ebling's work also addresses the societal issues involved in context-aware computing. In particular, a key component of the system addresses privacy concerns by allowing end users to control access to contextual information. Ebling is currently exploring ways to apply context-aware computing to enhance productivity in the workplace. She volunteers with IBM's Take Our Children to Work Day and with IBM's EXCITE camps, which expose middle-school aged girls to science and engineering. She is active in the MentorNet program to provide e-mentoring to technical women.

ebling@us.ibm.com

Igor Simone Stievano

Igor Simone Stievano, assistant professor at the Polytechnic University of Turin, Department of Electronics, in Torino, Italy, applied a sophisticated Artificial Intelligence methodology to generate models that replicate the behavior of digital devices allowing the prediction of signal propagation, integrity and compatibility in high-performance Information Technology devices.



There are two applications for Stievano's research. First, it generates models that, by hiding the internal structure of the devices, do not disclose the know-how and the intellectual proprietary information of microchip producers. Also such models, combining efficiency and accuracy, are ideal to be used in the early stages of the design project. They help to meet the time-to-market target avoiding expensive prototyping before the production phase. Stievano published his contributions in IEEE Transactions and presented the research advances in several international conferences. The quality of the research work was recognized two years in a row by the IBM Faculty Award.

stievano@polito.it



National Engineers Week Foundation
1420 King Street Alexandria, VA 22314
tel. 703.684.2852 email: eweek@nspe.org