

## What's the buzz on MEMS in 2011 and beyond?

### Medical Design Technology

In Dan Siewiorek's vision of the future, each of us will get an 'iPhone 20' at birth. Powered by a wide range of microelectromechanical systems, or MEMS, this personalized mobile device will monitor your heart rate when you exercise, help the visually impaired to grocery-shop, and remember important social clues such as people's names, phone numbers and directions. More of a "friend for life" than a smartphone, this intelligent device will help you to navigate your environment and will sustain you on a daily basis as you age. As a professor of computer science and electrical and computer engineering at Carnegie Mellon University's Quality of Life Center, Dr. Siewiorek has unique insight into the practical applications of MEMS sensors and contextual software for mobile phones and wearable pendants. While addressing an audience of more than 180 business executives at the 6th annual MEMS Executive Congress on November 4th, Siewiorek and his fellow panelists claimed the attention of MEMS suppliers looking for new business opportunities as well as leading OEMs eager to learn more about the commercial applications of MEMS technology.

*"We set records at MEMS Executive Congress this year, with more overall attendees and an even stronger international representation"*

*"At MEMS Executive Congress, OEMs and end users have a conversation with the MEMS industry about emerging trends and business opportunities," said **Karen Lightman**, managing director of the event's host organization, MEMS Industry Group. "During this year's forum, market analysts shared their latest research on what's hot and what's not, with an eye to market growth through 2015. Industry experts in consumer electronics, quality of life/robotics, and energy dove into the short- and long-term commercial uses of MEMS. And keynote speakers from HP and Intel offered an inside look at how two top technology companies see practical applications for MEMS within their own organizations and the global IT infrastructure."*

In his opening keynote address, **Rich Duncombe**, strategist, Technology Development Organization, Imaging and Printing Group, HP, reflected on the business processes behind his latest disruptive technology launch: *"While the creative energy behind innovation may seem like 'magic,' innovation at HP results from a disciplined business development process. We innovate from our core, incorporating client-focused innovation to deliver an end-to-end solution."*

HP's latest achievement is a wireless seismic imaging system featuring one million sensor nodes based on accelerometers that are up to 1000x more sensitive than today's consumer-centric accelerometers. Developed in collaboration with Shell, the new system uses high-resolution seismic data to locate difficult-to-find oil and gas reservoirs.

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In her closing keynote address, **Vida Ilderem**, PhD, vice president of Intel Labs and director of the Integrated Platform Research Lab for Intel Corporation, wrapped up MEMS Executive Congress with some concluding thoughts: *"The technology industry at large is realizing a greater mobility vision, one that encompasses mobile platforms and architectures, pervasive connectivity, context awareness and human-computer interaction."*

Identifying sensor-intensive applications such as mobile augmented reality devices and 'personal energy systems' for homes, offices and college campuses, Dr. Ilderem encouraged the audience to increase sensor intelligence and ease sensor integration to meet the requirements of these emerging context-aware systems.

### More Voices from MEMS Executive Congress

Smart Homes and Smart Meters

**Dean Samara-Rubio**, PhD, platform architect, Energy and Utilities, Intel, believes that *"we need sensing, communications, data structures and analytics in order to build an integrated node to make a truly smart home that engages the homeowner. Once we integrate this sensing capability into easily managed and interpreted systems, we may begin to make inroads into smart homes and smarter commercial buildings."*

**Cleo Cabuz**, CTO, Life Safety, Honeywell, highlighted energy harvesting as a significant opportunity for MEMS: *"With a strong portfolio of commercially-available energy harvesting devices for wireless sensors used in home and building automation, we see widespread future potential for small, low power MEMS sensors, using energy harvested from power lines, from light switches and even from gas and air flow devices."*

One of the event's energy success stories came from Liji Huang, PhD, founder, president and CEO, Siargo Ltd. Through MEMS-flow sensing technology, Siargo's smart gas meters have their first commercial win. Siargo has shipped its MEMS utility gas meters to more than 17 gas companies (including China Petro) since 2008. Most recently Siargo signed a strategic agreement with Asia's largest utility gas company, Hong Kong Towngas, to further develop and deploy this technology to its more than 11 million customers.

### Connecting Chilean Miners to the World Above

Jungkee Lee, PhD, principal engineer, director of Telecommunication Module Lab, Samsung, astounded Congress attendees through a use of MEMS never imagined. Dr. Lee demonstrated Samsung's Galaxy Beam mobile phone (GT-I8520) with integrated pico projector—which employs Texas Instruments DLP® pico chipset. He pointed out that another DLP-based pico-projector phone, the GT-I7410, shed some light into the lives of the trapped Chilean miners, allowing them to watch soccer games and other visual content via projected images generated by the Samsung phone.

### Shoes that Would Make Maxwell Smart Jealous

**Greg Turetzky**, senior marketing director, CSR, emphasized the value of MEMS as

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part of a whole platform: *"New classes of applications that include GPS, communication and MEMS—all integrated via software—are extremely compelling. One example might be shoes featuring an embedded GPS receiver, small MEMS sensor and mobile phone transmitter. Such 'smart' shoes could be used to track the whereabouts of children and Alzheimer's patients."*

*"We set records at MEMS Executive Congress this year, with more overall attendees and an even stronger international representation," offered Ms. Lightman. "With top-notch keynotes and high-caliber panels, our speakers conveyed the wealth of opportunities in MEMS technology and MEMS-enabled applications. Our attendees responded with enthusiasm, engaging with speakers in formal and informal networking venues. We have truly raised the bar for our 2011 MEMS Executive Congress!"*

### **About MEMS Executive Congress**

MEMS Executive Congress is an annual event that brings together business leaders from a broad spectrum of industries: automotive, consumer goods, energy/environmental, industrial, medical and telecom. It is a unique professional forum at which executives from companies designing and manufacturing MEMS technology sit side-by-side with their end-user customers in panel discussions and networking events to exchange ideas and information about the use of MEMS in commercial applications.

Sponsors of MEMS Executive Congress 2010 included: A.M. Fitzgerald & Associates, Analog Devices, ANSYS, Bosch Sensortec, DALSA, EV Group, Freescale Semiconductor, iSuppli, Lam Research, MEMS Investor Journal, Maxim, Okmetic, Plan Optik, SPP Process Technology Systems (SPTS), SUSS MicroTec, SVTC, Tegal Corporation and Yole Développement.

MEMS Executive Congress 2010 was held November 3-4, 2010 at the InterContinental Montelucia Resort & Spa in Scottsdale, Arizona. MEMS Executive Congress 2011 will be held November 2-3, 2011 at the Monterey Plaza Hotel and Spa. For more information, please contact MIG via phone: 412/390-1644, email: [info@memsindustrygroup.org](mailto:info@memsindustrygroup.org) or visit MEMS Executive Congress at: [www.memscongress.com](http://www.memscongress.com).

### **About MEMS Industry Group**

MEMS Industry Group (MIG) is the trade association advancing MEMS across global markets. MIG enables the exchange of non-proprietary information among members; provides reliable industry data that furthers the development of technology; and works toward the greater commercial development and use of MEMS and MEMS-enabled devices. More than 100 companies comprise MIG, including Analog Devices, Applied Materials, Bosch Sensortec, Freescale Semiconductor, GE, GLOBALFOUNDRIES, Honeywell, Intel, OEM Group, Plures Technologies, Rite Track, Tecnisco and Texas Instruments. For more information, visit [www.memsindustrygroup.org](http://www.memsindustrygroup.org).

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