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**Media Contact:**

Justine Houston-Brown

Lages & Associates

(949) 453-8080

[justine@lages.com](mailto:justine@lages.com)

## **MEMS & Sensors Safeguard Autonomous Cars, Boost Agricultural Productivity and Anticipate Needs**

MEMS & Sensors Executive Congress speakers feature smart sensing components in new industrial, automotive, biomedical, agricultural applications

**SAN JOSE, Calif. – November 2, 2017** – SEMI-MSIG’s MEMS & Sensors Executive Congress (MSEC) held November 1-2 in San Jose, CA, challenged industry executives to see beyond traditional dividing lines of human-machine interaction. MEMS and sensors were hailed as the enablers for pervasive, connected and contextually aware computing and seen as drivers for an explosion of new applications and possibilities. Securing autonomous vehicles from hackers and improving crop yields to feed the 10 billion people we will have on the planet by 2050 were two popular examples of new applications.

Lama Nachman, Intel fellow and director of the company’s Anticipatory Computing Lab, explored contextually aware systems during her keynote. Lachman said that technology needs to be more proactive, anticipating our needs, e.g., Google Now. One challenge lies in using sensors to measure things for which they were not designed, such as emotions and physiology. Lachman exhorted MSEC attendees to develop more configurable systems and sensors so that they can be used for other applications and possibly drive the next “killer app.”



Caption: Keynote Speaker Intel's Lama Nachman discussed contextually aware systems.

Lars Reger, CTO, NXP Automotive Business Unit, described the essential and extensive use of MEMS and sensors in automotive connectivity, autonomy, electrification, and safe and secure mobility during his keynote. Reger noted that “motion sensors are the key to increasing security in keyless entry systems, reducing hacking.” He concluded that “entering a new era of automated driving requires functional safety and security,” telling MSEC attendees, “we need the best sensors to achieve a failure-free model in autonomous vehicles.”



Caption: Keynote Speaker NXP's Lars Reger explored MEMS and sensors relative to automotive mega-trends.

Alissa Fitzgerald, founder and managing member, A.M. Fitzgerald & Associates, noted that the pipeline for emerging technologies generally begins with university labs turning out proof-of-concept devices. “The next \$1B product is lurking in a lab somewhere,” said Fitzgerald. She also encouraged attendees to look for key trends in emerging technologies, citing “ultra-low power, a migration from capacitive MEMS to piezoelectric sensors and actuators, the stagnation of silicon sensors, and a movement toward paper and plastic sensors.” She drew her results from a review of more than 500 papers from academic conferences, filtered for commercial viability.

Henri Hekman, CEO and president of SoilCares BV, explained how his company is using MEMS near infrared (NIR) devices to scan soil samples. “To feed a surging global population, we cannot increase arable land so we must increase agricultural productivity. The place to start is in the soil.” Hekman said that SoilCares is conducting trials in Africa and North America as it launches in 20 countries in 2017.



Caption: SoilCares' Henri Hekman explained how MEMS-based devices can increase agricultural productivity

SEMI-MSIG Executive Director Frank Shemansky expanded upon themes from MEMS & Sensors Executive Congress. “From device-makers to commercial application developers, there was a collective buzz around ubiquitous intelligent sensing,” said Shemansky. “Speakers explored the critical role of sensing in more natural and immersive user interfaces, including voice, in interpreting emotion, in anticipating needs, in managing medication, and in providing safer, more secure ways to build autonomous vehicles that will actually save human lives. As we look toward 2018 and beyond, the MEMS and sensors industry will continue to work closely

with the consumers of our products, as we help them to further advance human-machine interaction in meaningful ways.”

### **Tech Showcase Winner and Hall of Fame**

A highly anticipated event at the Executive Congress, the Technology Showcase, was a forum where four finalists competed for attendees’ votes and the title of “winner.” The 2017 Technology Showcase winner, Menlo Digital-Micro-Switch Technology by Menlo Micro, demonstrates fundamental materials’ advancements that improve the size, speed, power handling and reliability of MEMS switches. Menlo Micro’s MEMS-based switching element is the width of a human hair, enabling RF switching 1,000 times faster and lasts 1,000 times longer than traditional mechanical switches.



Caption: Menlo Micro’s MEMS-based switches operate 1,000x faster than traditional mechanical switches.

SEMI-MSIG also inducted two new members into the SEMI-MSIG Hall of Fame: Raji Baskaran, pathfinding lead, Hardware and Software Co-optimization, Intel Corporation; Saffron Technology Group, and Kevin Crofton, executive vice president and COO, SPTS Technologies, an Orbotech Company.

### **About MEMS & Sensors Executive Congress**

Now in its 13th year, MEMS & Sensors Executive Congress is an annual event that brings together business leaders from a broad spectrum of industries: automotive, communications, consumer goods, energy/environmental, industrial, Internet of Things and biomedical. Premier sponsors of MEMS & Sensors Executive Congress 2017 include: Platinum Sponsor: EV Group; Gold Sponsors: AMEC and SPTS Technologies; Silver Sponsor: Lam

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