



BI-ANNUAL REPORT 2017/2018

DEVELOPING TOMORROW'S INDUSTRY LEADERS



SEMI FOUNDATION MISSION AND VISION

MISSION:

Support education and career awareness in the field of high technology.

VISION:

Positively impact all who participate—students, parents, teachers, and volunteers.

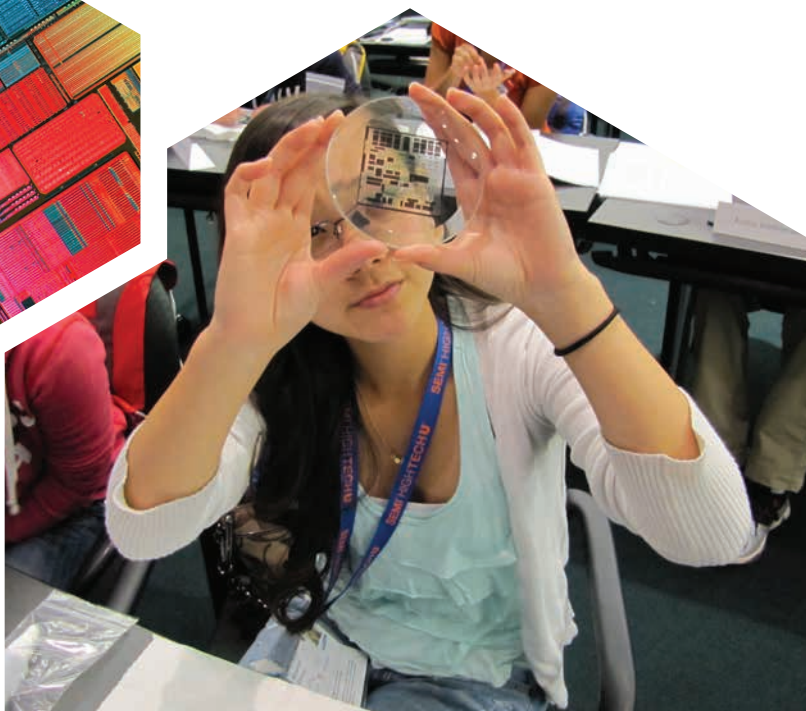
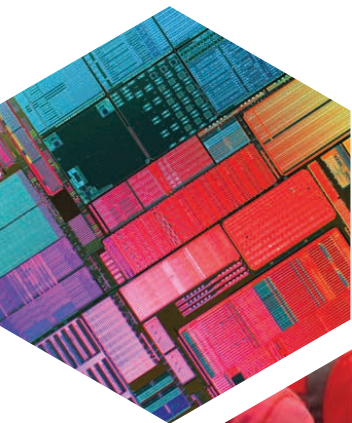
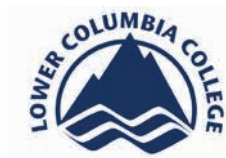
- Present a STEM-based curriculum (Science-Technology-Engineering-Math) that stimulates interest in high-tech careers.
- Enhance the positive perception of companies based in semiconductor technology.
- Partner with technology leaders, colleges and secondary schools to deliver the best programs possible.



THE SEMI HTU CERTIFIED PARTNER PROGRAM—

Award-winning and Growing

SEMI Foundation created the Certified Partner Program in 2016 to reach more high-school-age students and to introduce them to STEM-related careers in microelectronics. To earn certification, sponsors commit to a multi-phased training process. Upon completion, they are certified to deliver our award-winning program independently, on their own schedule and at a fraction of the cost. Four organizations are now certified to deliver HTU independently: Lower Columbia College, School District of Osceola County (SDOC), TEL and X-FAB.



VOLUNTEERS OF THE YEAR:

Vincent Villaume

2017 Volunteer of the Year

Site Operations Manager, IBM Account Team, Applied Materials

Vincent Villaume has been a volunteer in the SEMI HTU Teacher program for ten years, most notably as instructor of the Microchips and Solar Chips module. He is a perennial favorite of teachers who love his contributions—and not only for his French accent. Vincent's mother was also a teacher, so his engaging teaching style comes naturally, if not via inheritance. In 2017, the SEMI Foundation recognized him as *Volunteer of the Year* for his commitment to education and years of service to the Foundation and its High Tech U program.



Jeff Barnum

2017 Volunteer of the Year

Sr. Director, Technical Programs and Customer Engagement, KLA-Tencor

Jeff Barnum and his team have volunteered as instructors in SEMI HTU student and teacher programs for ten years. Jeff has personally taught a number of modules over the years and has engaged his team to support the Process Improvement, Statapult, Coding, and Creative Computing modules. Jeff is known for his ability to lead and energize a team and epitomizes the Foundation's core value of teamwork. As such, he was recognized by the Foundation in 2017 for Leadership in Teamwork.

Speaking of his work, Jeff says, "KLA-Tencor is a proud sponsor and contributor to the worldwide SEMI High Tech U Teacher and student development program. The program offers a unique and exceptional opportunity for high school teachers and students alike to receive first-hand exposure to the exciting and growing semiconductor industry by engaging with a variety of technical professionals employed in the field. Using a combination of the SEMI High Tech curricular science experimental modules, experience, discussion, company tours and some fun, the KLA-Tencor team helps bring excitement to STEM and helps demystify some of the technical and soft skills required to be successful as an engineering professional. Locally in New York, we have been fortunate to have had the opportunity to support the SEMI High Tech U program at New York State United Teachers (NYSUT), where a number of regional KLA-Tencor applications engineers have volunteered their time to teach, engage and share their knowledge and experience with NY State high school teachers. We have really enjoyed the mutually beneficial experience in the SEMI High Tech U program and hope to continue our support going forward."



BOARD MEMBER SPOTLIGHT

The SEMI Foundation welcomes Joe Stockunas, Corporate VP at Nordson Corporation, to its Board of Trustees. Joe came to Nordson in 2013, after 30 years at Air Products & Chemicals Inc., a leading provider of atmospheric gases, process and specialty gases, performance materials, equipment, and services. He holds a Bachelor of Science degree in metallurgy and materials engineering from Lehigh University. Joe has a long history of volunteerism, mentoring and giving back to his community. He sponsored the first High Tech U program in Pennsylvania in 2006 at Air Products.

1,272
TEACHERS
REACHED THROUGH
TEACHER
ACADEMY

NEW YORK STATE UNITED TEACHERS CELEBRATES 10 YEARS OF HTU

New York State United Teachers (NYSUT) held its tenth annual SEMI High Tech U immersion program in the summer of 2017. Managed by the SEMI Foundation’s Executive Director, Leslie Tugman, the professional development partnership provides a research-based learning experience for middle and secondary school teachers. “Professional development based on the needs of teachers helps ensure that students have the skills necessary to pursue high-tech careers and are prepared to meet the demands of a rapidly changing workforce,” says NYSUT Executive VP, Jolene DiBrango. NYSUT members—mostly teachers in STEM-related fields—spent two days learning how educators can best prepare students for career opportunities in high technology. It was the tenth anniversary of the program, which has seen more than 600 NYSUT educators participate in the past decade.

HIGH TECH U GRADUATES: WHERE ARE THEY NOW?

Candace Chu—HTU 2007



- **High Tech U Class:** 2007 at Lam Research
- **College Attended:** University of California, San Diego
- **Degrees Earned:** B.S. Environmental Systems (Ecology Behavior Evolution)
- **Current Position and Employer:** Project Manager, EV Charging Projects, Center for Sustainable Energy

- **Favorite HTU Memory:** HTU was fun and educational, and eleven years later I’m still in touch with friends I met there and still have the cleanroom bunny suit Lam gave me. Above all, the female role models and the diversity of our classmates inspired me. There was complete gender parity in the program—both in the instructors who taught the modules and among my peers.
- **HTU Impact:** I didn’t realize what my career options were until HTU. The program encouraged me to amp up my STEM skills and to explore the various pathways available. I use many skills acquired through HTU in my day-to-day work at the California energy commission’s alternative vehicle and renewable energy technology project. HTU helped me understand amps, kilowatts, volts, and energy consumption, and I learned how to do electrical calculations. I use coding and UX skills, and, most of all, the teamwork, problem solving, communication, and presentation skills that HTU helped me develop.
- **Future Goals:** To improve quality of life in disadvantaged communities by creating sustainable infrastructures to run electric vehicles.

Jared May—HTU 2007



- **High Tech U Class:** 2007 at Intel and Applied Materials
- **College Attended:** San Jose State University
- **Degrees Earned:** B.S. Industrial and Systems Engineering
- **Current Position and Employer:** Propulsion Production Engineer, Space Systems Loral
- **Favorite HTU Memory:** The industry tours and mock interviews—with the Catapult module a close second.
- **HTU Impact:** When I walked into SEMI HQ, it was the first time I had been in a professional work environment. It opened my eyes to a whole new world. No one in my family had high-tech or engineering experience. The SEMI staff was friendly and helpful in guiding me in this fascinating industry. I don’t know where I would be without them.
- **Future Goals:** In addition to exploring propulsion subsystems even further, I’d like to explore other types of engineering—IT, biotech, medical, and semiconductor.
- **Advice to Students Considering HTU:** Be open-minded and honest! Ask questions and listen. Don’t be afraid to admit you don’t know something. Also, don’t rule out your local college—they have great programs that won’t leave you in a ton of debt. Lastly, your interests might change as you get into the workforce, and that’s not a bad thing. If you have a solid STEM foundation, you can benefit society—and yourself—in so many ways.



HTU: MAKE IT A FAMILY AFFAIR!

As they work at sorting out their future, young people often ask, “What are my options?” HTU provides an excellent answer. Take the Coutinho family. All three children chose HTU to explore career opportunities. Today, all are working or studying in engineering-related positions around the world.

Chris conducts data analysis for a fuel cell technology start-up in the Netherlands. “It’s a great combination – sustainable energy and data analysis. Both areas are only going to grow in the future,” he says. His younger brothers liked what they heard and made sure to grab a seat when HTU sessions were offered. Today, Paul is at Applied Materials and Tim studies engineering at Portland State.

“There weren’t many course offerings at high school to prepare me for an engineering career,” recalls Chris. “At HTU, I learned about logic gates and circuit boards, and our student group acted out the inner workings of a basic calculator. It was very cool, and it made me understand that a computer is more-or-less just an organized grouping of gates passing bits around.”

Steven Coutinho, the boys’ father, is also a big advocate of HTU. “There’s not enough hands-on interaction at high schools,” says Steven. “I wish every school had a chance to send its students to HTU.” And Chris adds, “thanks HTU for all your help at a time in my life when it was most beneficial.”

7,978
STUDENTS
REACHED THROUGH
HIGH TECH U

SEMI HIGH TECH U SPONSORS

Advantest America, Inc.
 Air Liquide
 Alpen-Adria University
 Applied Materials
 Axcelis
 BRIDG
 Capital Region BOCES
 Carinthia University of Applied Sciences
 Cascade Microtech
 City of Klagenfurt
 City of Villach
 Cowlitz County PUD
 Ebara
 Education Foundation Osceola County
 Edwards Vacuum
 Entegris
 Fab Owners Association
 Fab Owners Association (FOA)
 Fachhochschule Kärnten
 Fairchild Semiconductor
 GLOBALFOUNDRIES Hudson Valley Community College—TEC-SMART
 IMEC
 Infineon Technologies
 Austria AG
 JSR Corporation
 Kinder Morgan Foundation
 KLA-Tencor
 KLA-Tencor Foundation
 Laboratory Science Institute
 Lakeside Science
 Technology Park
 Lam Research Corporation
 Lower Columbia College
 Lubbock Economic Development Alliance
 Mercury
 Micron
 Micron Foundation
 Millennium Bulk Terminals
 MKS Instruments
 National Grid
 Neo City
 New York State United Teachers (NYSUT)
 Nikon
 Nikon Precision, Inc.
 Nordson Corporation
 ON Semiconductor
 Portland Community College
 Regional Government of Carinthia
 Rensselaer Polytechnic Institute (RPI)
 Samsung Austin Semiconductor
 Samsung Electronics
 San Jose State University
 School District of Osceola County
 Seattle’s Hub for Industry-driven Nanotechnology Education (SHINE)
 SEMI Korea
 SPTS Technologies (An Orbotech Company)
 SUNY Polytechnic- College of Nanoscale Science and Engineering
 TEL
 Texas Tech University
 The Austrian Industry Association
 The Florida High Tech Corridor
 Thermo Fisher Scientific
 Toole Family Foundation
 University of Central Florida
 University of Texas—NASCENT
 University of Washington
 Versum Materials
 VWR Foundation
 Western Digital
 Weyerhaeuser
 X-FAB Texas Inc.
 Yonsei University



A LOOK AT THE FOUNDATION'S NEW WORKFORCE DEVELOPMENT INITIATIVES

With sales booming, but the pool of new workers shrinking, attracting candidates and developing a global workforce has never been more critical for sustaining industry innovation and growth. Accordingly, Foundation interactions with members were at an all-time high in the past year. We were on the road and on the phone, pinning down the issues that could stymie our members' long-term success. The bottom line across the extended electronics supply chain is that talent and diversity are in short supply. With 10,000 vacant positions globally, the industry clearly has reached a pinch point. SEMI is aggressively addressing the shortage with four new initiatives. Here are some highlights:

NO. 1—DISCOVERY & ROADMAP

After gathering best practices, talent trends, and workforce-related needs from member representatives, SEMI developed an industry workforce roadmap. The roadmap targets a needed shift in how our businesses manage the challenges facing worker recruitment and retention. A set of realistic objectives supported by high-impact tactics was included. A new effort calls for expanded university relations to better funnel undergrad engineering pipelines into semiconductor options. To ensure timely and efficient industry collaboration, the roadmap integrates all recommended activities and provides a timeline for their completion.

NO. 2—DELOITTE STUDY

Today, some 77 percent of SEMI members report an acute shortage of talent. SEMI enlisted Deloitte Consulting to conduct interviews and surveys to provide insights on how to address the gap. The study's findings led to establishment of SEMI's workforce initiatives for developing strategies to address workforce issues and talent demands.

A key finding identified a severe lack of awareness and enthusiasm for career opportunities in the industry. Clearly, a higher industry profile needs to be put in front of prospective engineers. So, SEMI

set out to develop an image campaign to generate buzz and reshape the perception of the semiconductor industry. Research has been conducted and planning is in progress to deliver a campaign that promotes our industry as an innovative, diverse, and creative field—a place to enjoy a rewarding career.



NO. 3—GLOBAL WORKFORCE DEVELOPMENT COUNCILS

Workforce development is a top priority for SEMI. To ensure the voice of its members is clearly heard, the Workforce Development Council has been established to provide guidance on the development and regional implementation of workforce development and talent advocacy programs and initiatives globally.

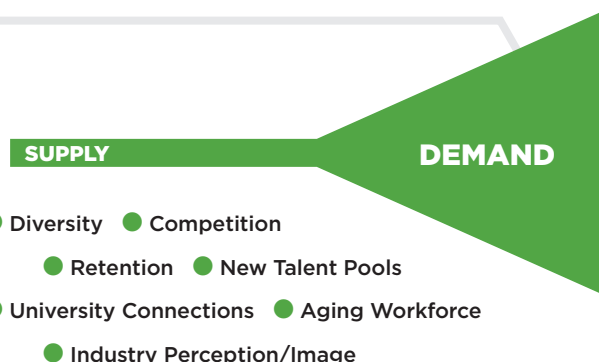
NO. 4—DIVERSITY

SEMI is committed to supporting and creating the necessary policies and initiatives to advance diversity and inclusion in our workplace and the workplaces of our member companies. Toward that end, the member driven Diversity and Inclusion Council was formed for the purpose of providing guidance and validation on

THE TALENT PIPELINE

Problem Statement:

- Industry prosperity depends on a high-skilled work innovative workforce.
- Increased demand for talent and challenges with the supply of workers requires active workforce development initiatives.



**SEMI FOUNDATION
Q1 2019 SPOTLIGHT:**

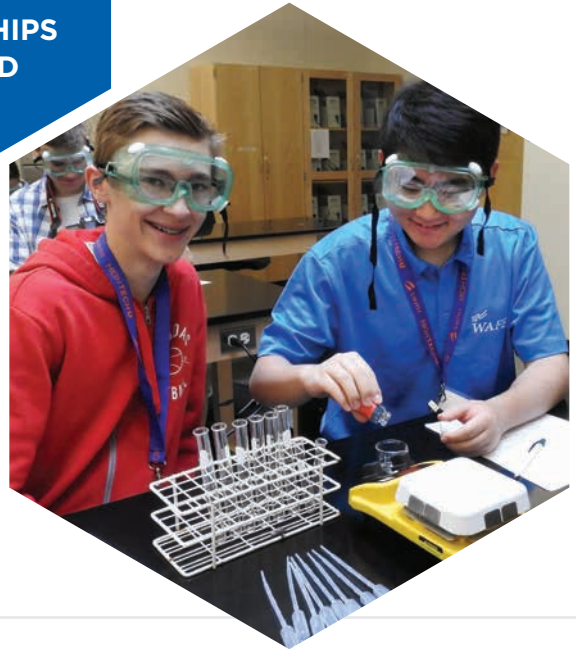
SPOTLIGHT ON SEMI WOMEN

Katie Maloney, Edwards Vacuum

SEMI would like to recognize *Katie Maloney* of Edwards Vacuum as the SEMI Spotlight on Women Honoree for Q1 2019.

www.semifoundation.org

**15
SCHOLARSHIPS
AWARDED
IN 2017**



diversity and inclusion initiatives undertaken by SEMI and the SEMI Foundation. The Council will specifically focus on strategy, prioritization, scope, and desired outcomes—to ensure faster time to better business results for the industry.

Several initiatives have been undertaken including sponsoring women’s forums through out the year, recognizing women in the workplace through the “Spotlight on SEMI Women” program, and the SEMI Mentoring program.

Spotlight on SEMI Women recognizes and celebrates the many accomplished women who work in our global microelectronics industry by publishing a “Spotlight” article on one SEMI woman per quarter thus highlighting their accomplishments and holding up role models for others. SEMI’s first “Spotlight” honoree was Jessica Gomez, CEO of Rogue Valley Microelectronics. To read about our current honoree and find out how to nominate a woman today, Visit: www.semifoundation.org/spotlight-on-semi-women

SEMI HTU WINS INNOVATIVE PROGRAM AWARD

A major highlight of the year came when the Foundation’s High Tech U was presented the prestigious Innovative Program Award at the High Impact Technology Exchange Conference (HI-TEC). Sponsored by a consortium of National Science Foundation Advanced Technological Education (ATE) groups, the award recognizes professionals for implementing innovative educational programs that positively impact student enrollment, retention, and advanced technology curricula.

“It’s been rewarding to work with industry partners to emphasize the importance of STEM skills and inspire young people to pursue careers in high technology,” said Leslie Tugman, Executive Director of the SEMI Foundation. “Seventy percent of HTU alumni graduate college with STEM degrees and go on to work in STEM careers,” she added.

“The SEMI Foundation is a leader in the delivery of hands-on, STEM-based, career exploration programs,” said ATE representative, Michael Lesiecki. “Leslie’s work bringing the HTU model to industry partners has become a standard of excellence in early work-force development.”



SEMI Foundation’s commitment to education and career awareness in high-tech fields now extends beyond formal education and into the workplace through our mentoring program. SEMI’s Mentoring Program was established with an aim to enhance the recruitment and retention of women in the microelectronics industry. While the program is open to both men and women, studies show that mentoring is a tool that helps to increase females in the workplace.

By matching mentees with industry leaders and professionals, SEMI Foundation facilitates one-on-one mentoring relationships that benefit all participants. Launched in Q4 of 2017, the mentoring program had 100 active mentor pairs by the end of 2018 with plans to extend the program in Europe and SE Asia. To learn more, follow this link: www.semifoundation.org/semi-mentoring-program



SEMI FOUNDATION BOARD OF TRUSTEES

Tom Tsuneishi—*Chairman of the Board,*
Representative Director, TEL

John Biera—*Principal,* Central High School

Dana Ditmore—*President,* Oak Valley Consulting

Dan Durn—*Senior Vice President and Chief*
Financial Officer, Applied Materials

Helen Grays-Jones—*Meriwest Credit Union*

Stanley Myers—*President,* S.T. Myers and Associates

Joe Stockunas—*Corporate Vice President,*
Nordson Corporation

Belle Wei, Ph.D.—*Carolyn Guidry Chair in*
Engineering Education and Innovative Learning,
San José State University

Arthur W. Zafiropoulo—*Chairman, CEO and*
President, Ultratech

OFFICERS OF THE SEMI FOUNDATION

Ajit Manocha—*President and CEO*

Richard Salsman—*Chief Financial Officer*

Leslie Tugman—*Executive Director*

THE SEMI FOUNDATION WELCOMES YOUR SUPPORT

We welcome contributions in support of SEMI Foundation activities, including the Foundation's scholarships and High Tech U programs. SEMI Foundation is a 501(c)(3) non-profit charitable organization. All contributions are tax-deductible for U.S. tax reporting. Please make checks payable to SEMI Foundation and mail to:

SEMI Foundation
673 S. Milpitas Boulevard
Milpitas, CA 95035

Donors are invited to consider planned giving opportunities such as a charitable trust or corporate stock donations.

MENTORS NEEDED!

If you would like to mentor a college student or recent grad, please contact the SEMI Foundation at semifoundation@semi.org or +1.408.943.6900. Or visit our website at www.semifoundation.org.