

## ***NEWS RELEASE***



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### **Dr. Andrzej J. Strojwas of Carnegie Mellon University Honored with 2016 Phil Kaufman Award**

*Dr. Strojwas Lauded for Pioneering and Sustained Contributions to Design for Manufacturing*

**SAN JOSE, CALIF. — September 27, 2016** — Andrzej J. Strojwas, Keithley professor of Electrical and Computer Engineering at Carnegie Mellon University, has been selected as the recipient of the 2016 Phil Kaufman Award for Distinguished Contributions to Electronic System Design (EDA).

The award is presented yearly by the [Electronic System Design Alliance](#) (ESD Alliance) and the [IEEE Council on Electronic Design Automation](#) (CEDA). The award ceremony and dinner will be held at the Fourth Street Summit Center in San Jose, Calif., Thursday, January 26, beginning at 6:30 p.m.

Dr. Strojwas is being recognized for his pioneering research in the area of design for manufacturing in the semiconductor industry. According to Dr. Larry Pileggi, the Tanoto professor of Electrical and Computer Engineering at Carnegie Mellon University, virtually every

fab in the world, as well as a vast majority of chips manufactured today, use methodologies Dr. Strojwas developed. “Since the 1970s, he has done as much as anyone to co-optimize IC design and manufacturing, driving the more sophisticated use of design data in fabs.”

“At CMU, Dr. Strojwas and his colleagues Wojciech Maly and Stephen Director realized that semiconductor yield involves more than controlling contamination in a fab,” says Rob Aitken, R&D fellow at ARM, Inc. “It is also a consequence of design decisions. This insight led to the observation that yield influencers could be modeled, and that yield could be predicted by building a set of systematic test structures and analyzing the results. This systematic approach in many ways has enabled the fabless semiconductor ecosystem.”

“Dr. Strojwas’ contributions to improving and streamlining fabrication in the 1990s cannot be overstated,” adds Rick Wallace, chief executive officer (CEO) of KLA-Tencor. “Deciding which wafers to inspect and where on the wafer to look were significant decisions. Dr. Strojwas developed a novel methodology using product layout design information to determine critical area-based sampling, reducing the amount of inspection time required and making in-line inspection affordable and effective. All major semiconductor fabs today employ these methods.”

Semiconductor manufacturers have benefited from doubling of yield learning rates, resulting in billions of dollars in increased revenue since the 0.35 micron node. “Dr. Strojwas was instrumental in enabling this by using statistically accurate test chips and simulation for rapid yield learning,” states John Kibarian, CEO of PDF Solutions, Inc., and co-chair of the ESD Alliance. “His contributions have become industry standards in yield improvement.”

“Dr. Strojwas has published his research work extensively, including three books, more than 80 journal papers, and nearly 250 conference papers,” comments Shishpal S. Rawat, president of CEDA. “He has successfully transformed his research into developing ULSIC

designs with superior manufacturability as well as diagnosing manufacturing process issues that continuously improve line yield for these chips.”

“Andrzej has been more effective in transferring university EDA research to industry than nearly all other academics,” remarks Dr. Chenming Hu, TSMC distinguished professor emeritus at the University of California at Berkeley, and the 2013 Phil Kaufman Award recipient. “The result is an exemplary four-decade long career that has significantly advanced the art and science of design for manufacturability.”

John Chen, vice president at NVIDIA Corporation, observes: “Dr. Strojwas’ ‘Design for Inspection’ methodology allows us to ‘detect the undetectables,’ allowing the industry to achieve the perfection required to cost effectively manufacture today’s chips containing billions of transistors and tens of billions of contacts and vias.”

“The relationship between design and manufacturing has never been more important, and we must give Dr. Strojwas great credit for recognizing early on that design for manufacturing needed to be a key element of chip design automation,” concludes Bob Smith, executive director of the ESD Alliance. “His work was instrumental in bringing design and manufacturing together in a way that has benefited the semiconductor design and manufacturing communities as well as the broader electronics products markets.”

### **Dr. Andrzej J. Strojwas, the 2016 Phil Kaufman Award Recipient**

Andrzej J. Strojwas is the Joseph F. and Nancy Keithley Professor of Electrical and Computer Engineering at Carnegie Mellon University. Since 1997, he has served as Chief Technologist at PDF Solutions. He has held positions at Harris Semiconductor Co., AT&T Bell Laboratories, Texas Instruments, NEC, HITACHI, SEMATECH and KLA-Tencor.

He received multiple awards for the best papers published in the IEEE Transactions on Computer-Aided Design of Integrated Circuits and Systems, IEEE Transactions on Semiconductor Manufacturing and IEEE-ACM Design Automation Conference. Dr. Strojwas is a recipient of the SRC Inventor Recognition Award. He was the Editor of the IEEE Transactions on CAD of ICAS from 1987 to 1989 and served as Technical Program Chairman of the 1988 ICCAD and Conference Chairman of the 1989 ICCAD. In 1990, he was elected IEEE Fellow.

Dr. Strojwas received a Master of Science degree in Electrical Engineering from the Technical University of Warsaw, Poland, and his Ph.D. from Carnegie Mellon University in Pittsburgh.

#### **About the Phil Kaufman Award**

The Phil Kaufman Award honors individuals who have had demonstrable impact on the field of EDA through technology innovations, education/mentoring, or business or industry leadership. The award was established as a tribute to Phil Kaufman, the late industry pioneer who turned innovative technologies into commercial businesses that have benefited electronic designers. Last year's recipient was Dr. Walden C. Rhines, chairman and CEO of Mentor Graphics Corporation. He was honored for growing the EDA and integrated circuit (IC) design industries through his efforts as a leading voice of EDA and for pioneering the evolution of IC design to system-on-chip (SoC) design. For more details and registration information for this year's Phil Kaufman Award Dinner, visit [esd-alliance.org](http://esd-alliance.org)

#### **About the Electronic System Design Alliance**

The [Electronic System Design \(ESD\) Alliance](http://esd-alliance.org), an international association of companies providing goods and services throughout the semiconductor design ecosystem, is a forum to address technical, marketing, economic and legislative issues affecting the entire industry. It acts

as the central voice to communicate and promote the value of the semiconductor design industry as a vital component of the global electronics industry. For more information about the ESD Alliance, visit <http://www.esd-alliance.org>

### **About the IEEE Council on Electronic Design Automation (CEDA)**

The IEEE Council on Electronic Design Automation (CEDA) provides a focal point for EDA activities spread across six IEEE societies (Antennas and Propagation, Circuits and Systems, Computer, Electron Devices, Microwave Theory and Techniques, and Solid-State Circuits). The Council sponsors or co-sponsors over a dozen key EDA conferences including: the Design Automation Conference (DAC), Asia and South Pacific Design Automation Conference (ASP-DAC), International Conference on Computer Aided Design (ICCAD), Design Automation and Test in Europe (DATE), and events at Embedded Systems Week (ESWeek). The Council also publishes IEEE Transactions on Computer Aided Design of Integrated Circuits & Systems (TCAD), IEEE Design & Test (D&T), and IEEE Embedded Systems Letters (ESL). In order to promote the recognition of leading EDA professionals, the Council sponsors the A. Richard Newton, Phil Kaufman, and Ernest S. Kuh Early Career Awards. The Council welcomes new volunteers and local chapters. For more information on CEDA, visit: [www.ieee-ceda.org](http://www.ieee-ceda.org).

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