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Press Release

EDAA Achievement Award 2025 goes to Subhasish Mitra

The Achievement Award is given to individuals who made outstanding contributions to the state of the art in electronic design, automation and testing of electronic systems in their life. To be eligible, candidates must have made innovative contributions that impacted how electronic systems are being designed.

Past recipients have been Kurt ANTREICH (2003), Hugo DE MAN (2004), Jochen JESS (2005), Robert BRAYTON (2006), Tom W. WILLIAMS (2007), Ernest S. KUH (2008), Jan M. RABAEY (2009), Daniel D. GAJSKI (2010), Melvin A. BREUER (2011), Alberto L. SANGIOVANNI-VINCENTELLI (2012), Peter MARWEDEL (2013), Rolf ERNST (2014), Lothar THIELE (2015), Giovanni DE MICHELI (2016), C. L. David LIU (2017), Mary Jane IRWIN (2018), Jacob ABRAHAM (2019), Luca BENINI (2020), Georges GIELEN (2021), Edward A. LEE (2022), Jason Cong (2023), and Ingrid Verbauwhede (2024).

Subhasish Mitra holds the William E. Ayer Endowed Chair Professorship in the Departments of Electrical Engineering and Computer Science at Stanford University. He directs the Stanford Robust Systems Group, serves on the leadership team of the Microelectronics Commons AI Hardware Hub funded by the US CHIPS and Science Act, leads the Computation Focus Area of the Stanford SystemX Alliance, and is the Associate Chair (Faculty Affairs) of Stanford Computer Science. His research ranges across Robust Computing, NanoSystems, Electronic Design Automation (EDA), and Neurosciences. Results from his research group have influenced almost every contemporary electronic system and have inspired significant government and research initiatives in multiple countries. He has held several international academic appointments — the Carnot Chair of Excellence in NanoSystems at CEA-LETI in France, Invited Professor at EPFL in Switzerland, and Visiting Professor at the University of Tokyo in Japan. Prof. Mitra also has consulted for major technology companies including Cisco, Google, Intel, Merck (EMD Electronics), Samsung, and Xilinx (now AMD).

In the field of robust computing, he has created many key approaches for circuit failure prediction, on-line diagnostics, QED system validation, soft error resilience, and X-Compact test compression. Their adoption by industry is growing rapidly, in markets ranging from cloud computing to automotive systems, under various names (System Lifecycle Management, Predictive Health Monitoring, Predictive Maintenance, In-System Test Architecture, In-field Scan, and so on). His X-Compact approach has proven essential to cost-effective manufacturing and high-quality testing of almost all 21st century electronic systems. X-Compact and its derivatives enabled billions of dollars of cost savings across the industry. The X-Compact approach has become widely available through commercial EDA tools.

In the field of NanoSystems, with his students and collaborators, he demonstrated several firsts: the first NanoSystems hardware among all beyond-silicon nanotechnologies for energy-efficient computing systems (the carbon nanotube computer), the first 3D NanoSystem with computation immersed in data storage, the first published end-to-end computing systems using resistive memories (Resistive RAM-based non-volatile computing systems delivering 10-fold energy efficiency versus embedded flash), and the first monolithic 3D integration combining silicon CMOS with heterogeneous beyond-silicon logic and memory technologies in a silicon foundry. These received wide recognition: cover of NATURE, several highlights to the US Congress, and highlight as "important scientific breakthrough" by numerous news organizations around the world.

Prof. Mitra's honors include the Harry H. Goode Memorial Award (by the IEEE Computer Society for outstanding contributions in the information processing field), the Newton Technical Impact Award in EDA (test-of-time honor by ACM SIGDA and IEEE CEDA), the University Researcher Award (by the Semiconductor Industry Association and Semiconductor Research Corporation to recognize lifetime research contributions), the Intel Achievement Award (Intel's highest honor), the Humboldt Research Award (from the Alexander von Humboldt Foundation recognizing a researcher's entire achievements), and the Distinguished Alumnus Award from the Indian Institute of Technology, Kharagpur.

He and his students have published over 15 award-winning papers across 5 topic areas (technology, circuits, EDA, test, verification) at major venues including the Design Automation Conference, IEEE Transactions on Computer-Aided Design, International Conference on Computer-Aided Design, International Electron Devices Meeting, International Solid-State Circuits Conference, International Test Conference, Symposium on VLSI Technology, Symposium on VLSI Circuits, VLSI Test Symposium, and Formal Methods in Computer-Aided Design. Stanford undergraduates have honored him several times "for being important to them." He is a Fellow of the Association for Computing Machinery (ACM) and the Institute of Electrical and Electronics Engineers (IEEE), and a Foreign Member of Academia Europaea.
