

KIOS Distinguished Lecture Series



Prof. Alberto Sangiovanni Vincentelli
University of California, Berkeley, USA

Wednesday, **29 May 2024**, at **15:00** | Amphitheatre **B108**

AI for Design: Panacea or Useful Tool?

LECTURE ABSTRACT

Machine learning as the most important component of AI has been touted as the solution to everything: from large language models to generating movies and content in general, from predicting the future, to optimizing production. Design is certainly in the category of important human tasks that fall into the machine learning application domain. However, it is unclear whether we can fully trust the statistical models underlying machine learning. I will overview some interesting use of AI techniques in autonomous vehicles and IC design and point to what we can do to improve its accuracy and avoiding hallucinations.

BRIEF BIO

Alberto Sangiovanni Vincentelli is the Edgar L. and Harold H. Buttner Chair of Electrical Engineering and Computer Sciences at the University of California, Berkeley. In 1980-1981, he was a Visiting Scientist at the Mathematical Sciences Department of the IBM T.J. Watson Research Center. In 1987, he was Visiting Professor at MIT. He is an author of over 1000 papers, 19 books and 3 patents in the area of design tools and methodologies, large scale systems, embedded systems, hybrid systems and AI. He was a co-founder of Cadence and Synopsys, the two leading companies in the area of Electronic Design Automation.



Board Participation: Public Companies: He has been a member of the Board of Directors of Cadence, Cy4Gate and KPIT Technologies. • Privately Held Companies: He is the Chairman of the Board of Directors of e4Life (IT), QuantumMotion (UK), Phononic Vibes (IT), Innatera (NL). He is a member of the Board of MinervaCQ (US), Exein (IT) and eGap (IT). • Advisory Boards: He had been a member of the ST microelectronics Advisory Board for more than 10 years. He was a member of the HP Strategic Technology Advisory Board (2005-2007), of the Science and Technology Advisory Board of General Motors (2003-2013), and of the Technology Advisory Council of United Technologies Corporation (2005-2019). He is a member of the Advisory Board of Xseed, Walden International and Berkeley Frontier, of the Investment Committee of Fondo Next. He had been the President of the Strategic Committee of the Italian Strategic Fund (2010-2015), of the Scientific Council of the Italian National Science Foundation (CNR) (1997-2010) of the Executive Committee of the Italian Institute of Technology (2010-2021) and the Chairperson of the Comitato Nazionale Garanti per la Ricerca (2012-2015). In 2023, he was appointed as President of the Chips-IT Foundation. He has been the Head of the Academic Advisors of SkyDeck, Berkeley, the special Advisors for Innovation of the Dean of Engineering, UC Berkeley, and the Chair of the Strategy Board of the Milano Innovation District.

Honors: • Teaching: In 1981, he received the Distinguished Teaching Award of the University of California. He received the worldwide 1995 Graduate Teaching Award of the IEEE for “inspirational teaching of graduate students”. In 2002, he was the recipient of the Aristotle Award of the Semiconductor Research Corporation.

Research: He received numerous research awards including the Guillemain-Cauer Award (1982-1983), the Darlington Award (1987-1988) of the IEEE for the best paper bridging theory and applications, and two awards for the best paper published in the IEEE Transactions on CAS and CAD, five best paper awards and one best presentation awards at the Design Automation Conference, the best paper award at the International Conference on CyberPhysical Systems, other best paper awards at the Real-Time Systems Symposium, and the VLSI Conference.

Major Honors • In 2001, he was given the Kaufman Award of the Electronic Design Automation Council for “pioneering contributions to EDA”. • In 2008, he was awarded the IEEE/RSE Wolfson James Clerk Maxwell Medal “for groundbreaking contributions that have had an exceptional impact on the development of electronics and electrical engineering or related fields”. • In 2009, he received the first ACM/IEEE A. Richard Newton Technical Impact Award in Electronic Design Automation to honor persons for an outstanding technical contribution within the scope of electronic design automation. • In 2012, he received the Lifetime Achievement Award from EDAA. • In 2023, he received the BBVA Foundation Frontiers of Knowledge Award as a sole winner in the category of Information and Telecommunication Technology with the following citation: “for transforming chip design from a handcrafted process to the automated industry that power today’s electronic devices.” • He was elected a Fellow of the IEEE in 1982, a Fellow of the ACM in 2014, a Member of the National Academy of Engineering, the highest honor bestowed upon a US engineer, in 1998, and of the America Academy of Arts and Sciences in 2024.

Honorary Degrees: In 2009, he was awarded an Honorary Doctorate by the combined EE and CS departments of the University of Aalborg in Denmark. In 2012, he was given an Honorary Doctorate from KTH in Sweden. In 2020, he was awarded an Honorary Doctorate from the AGH University of Science and Technology, Krakow, Poland and in 2022 from the University of Rome, Tor Vergata.



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