The 4th International Symposium of the Institute for AI and Beyond

March 1 (Fri.), 2024
2:00pm-6:00pm (JST)

Event Format: Hybrid (Onsite + Online)

Onsite Venue	**FUKUTAKE Learning Theater (FUKUTAKE HALL B2F, Interfaculty Initiative in Information Studies, The University of Tokyo)**
Online	**Zoom Webinar**

Devices and Hardware Technologies for AI and Beyond

Event Overview

This international symposium will introduce the research status of the Institute for AI and Beyond at the University of Tokyo, one of Japan's AI research centers, to the world. In addition, the symposium aims to discuss various issues related to AI research. In the fourth symposium, under the theme of "Devices and Hardware Technologies for AI and Beyond," we will discuss semiconducting technologies that will be required as well as anticipated issues on hardware for present AI and beyond. In particular, the symposium will provide an opportunity to discuss issues that are expected to significantly impact society as a whole, such as measures to deal with increasing power consumption, with experts from various fields.

Please register via either link below.

For onsite participation
https://form.qooker.jp/Q/auto/ja/BAISympoOnsite/0301reg/

For webinar participation
https://form.qooker.jp/Q/auto/ja/BAISympoWeb/0301reg/

※Registration will close when the number of participants reaches the capacity.

Organized by Institute for AI and Beyond, The University of Tokyo

Contact: Office of the Institute for AI and Beyond, The University of Tokyo E-mail: event@beyondai.jp

東京大学 THE UNIVERSITY OF TOKYO　SoftBank　LINEヤフー

The 4th International Symposium of the Institute for AI and Beyond

Devices and Hardware Technologies for AI and Beyond

Program

Language: English / Japanese (Simultaneous interpretation offered)

Opening Remarks

Teruo Fujii President, The University of Tokyo
Junichi Miyakawa President & CEO, SoftBank Corp.

Introduction of The Beyond AI Joint Project

Masami Hagiya Director, Institute for AI and Beyond, The University of Tokyo

Purpose of the Event

Hitoshi Tabata Professor, The University of Tokyo

1st Session Keynote speech

William Dally NVIDIA Chief Scientist and Senior Vice President of Research
Kevin Zhang Senior Vice President, Business Development, TSMC

Break

Terry Higashi Chairman of the Board of Directors, Rapidus Corporation / Chairman, LSTC
Tadahiro Kuroda Professor, The University of Tokyo / Director of d.lab
Hideo Ohno President, Tohoku University

Break

2nd Session Panel Discussion

Required technology and anticipated issues on hardware for present AI and beyond

Moderator **Hitoshi Tabata** Professor, The University of Tokyo

Panelist (Japanese order)
Tadahiro Kuroda Professor, The University of Tokyo / Director of d.lab
Kazumi Nishikawa Principal Director, Economic Security, Policy, Minister's Secretariat, Principal Director, Trade and Economic Cooperation Bureau Ministry of Economy, Trade and Industry (Former Director, Policy Planning and Coordination Division / Former Director, IT Industry Division, Commerce and Information Policy Bureau)
Terry Higashi Chairman of the Board of Directors, Rapidus Corporation / Chairman, LSTC
Kazuya Masu President, Tokyo Institute of Technology
Miyoko O. Watanabe Standing Trustee, Nihon University / President/CEO, NPO Wood Deck

Closing Remarks

Masami Hagiya Director, Institute for AI and Beyond, The University of Tokyo

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Tetsuya Iizuka Associate Professor, Systems Design Lab (d.lab), Graduate School of Engineering, The University of Tokyo

Hiroshi Katayama-Yoshida Project Researcher, Center for Spintronics Research Network, Graduate School of Engineering, The University of Tokyo

Munetoshi Seki Associate Professor, Center for Spintronics Research Network, Graduate School of Engineering, The University of Tokyo

The 4th International Symposium of the Institute for AI and Beyond

Devices and Hardware Technologies for AI and Beyond

Opening Remarks

Teruo Fujii President, The University of Tokyo

Dr. Teruo Fujii is the 31st President of the University of Tokyo. Prior to taking the President's office in April 2021, he was Executive Vice President in charge of finance and external relations for the university. He also served as the Director General of the Institute of Industrial Sciences (IIS) of the university from 2015 to 2018. He received his Ph.D. in engineering from UTokyo in 1993 and held research positions at IIS and RIKEN prior to becoming a professor of IIS in 2007. His research specializes in applied microfluidics systems and underwater technology.

Opening Remarks

Junichi Miyakawa President & CEO, SoftBank Corp.

Junichi Miyakawa is President & CEO at SoftBank Corp. (since 2021), and also serves as President and CEO of HAPSMobile Inc. and Director of MONET Technologies Inc. Miyakawa's past positions include Technical Chief Operating Officer at US-based Sprint Corporation (2014), Director, Executive Vice President & CTO of SoftBank Mobile Corp. (now SoftBank Corp.) (2007), Director of SoftBank BB Corp. (now SoftBank Corp.) (2003) and Representative Director & President of Nagoya Metallic Communications Corp. (now SoftBank Corp.) (2000). Prior to these positions, in 1991 he became Representative Director & President of KK Momotaro Internet.

Introduction of The Beyond AI Joint Project / Closing Remarks

Masami Hagiya Director, Institute for AI and Beyond, The University of Tokyo

After receiving M.Sc. from the University of Tokyo, Masami Hagiya worked for Research Institute for Mathematical Sciences, Kyoto University, and received a Doctor of Science in 1988. He was a professor at Department of Computer Science, Graduate School of Information Science and Technology, the University of Tokyo, from 2001 to 2022. He has been working in the fields of software science and engineering, including theory of programming languages, software testing and formal verification. He is also working in the fields of natural computing (computing by natural phenomena), including DNA computing. He was appointed as the Director of Institute for AI and Beyond in April 2021.

Purpose of the Event / Moderator

Hitoshi Tabata Professor, The University of Tokyo

Graduated from Kyoto University in 1988. He worked at the Technical Institute of Kawasaki Heavy Industries from 1988 to 1994 and moved to Osaka University, The Institute of Scientific and Industrial Research, as a Research Associate. He was a research associate and associate professor at Osaka University from 1994 to 2002. He was a professor of Nano-science and Nano-technology Center at Osaka University from 2002 to 2006. After 2006, He is a professor at The University of Tokyo. He studies functional oxide thin films and artificial lattices using a laser MBE technique. He is engaged in fusion research of oxide electronics and bioelectronics. He received a Japan Society for the Promotion of Science (JSPS) Prize in 2008. He was awarded as a fellow of the Japan Society of Applied Physics in 2014.

Keynote speech

William Dally NVIDIA Chief Scientist and Senior Vice President of Research

Bill Dally joined NVIDIA in 2009 as chief scientist, after spending 12 years at Stanford University, where he was chairman of the computer science department. Dally and his Stanford team developed the system architecture, network architecture, signaling, routing and synchronization technology that is found in most large parallel computers today. His contributions at MIT involved pioneering experimental parallel computer systems, namely the J-Machine and the M-Machine, showcasing innovative separation of mechanism from programming models and demonstrating low-overhead synchronization and communication mechanisms. He was at CalTech, where he designed the MOSSIM Simulation Engine and the Torus Routing chip, which pioneered "wormhole" routing and virtual-channel flow control. He is a member of the National Academy of Engineering, a Fellow of the American Academy of Arts & Sciences, a Fellow of the IEEE and the ACM, and has received the ACM Eckert-Mauchly Award, the IEEE Seymour Cray Award, and the ACM Maurice Wilkes award. He has published over 250 papers, holds over 120 issued patents, and is an author of four textbooks. Dally received a master's in Electrical Engineering from Stanford University and a Ph.D. in Computer Science from CalTech. He was a cofounder of Velio Communications and Stream Processors.

Keynote speech

Kevin Zhang Senior Vice President, Business Development, TSMC

Dr. Kevin Zhang currently serves as Senior Vice President of Business Development at Taiwan Semiconductor Manufacturing Co. Ltd. (TSMC), where he is responsible for companywide business strategy, including technology roadmap and customer engagement. He also co-leads TSMC's Overseas Operations Office which is responsible for supporting the company's global expansion and accelerating the organizational effectiveness of overseas operations. Prior to this role, Dr. Zhang was Vice President of Design and Technology Platform and drove advanced IP development when he first joined the company in 2016. He became Vice President of Business Development in 2017. Before joining TSMC, Dr. Zhang was Vice President of Technology and Manufacturing Group and Director of Circuit Technology at Intel, where he was responsible to key process and design collaterals and co-definition and optimization for Intel products. He led the development of embedded memory technologies from 90nm to 10nm at Intel. Dr. Zhang was elected as Intel Fellow in 2005 and led his teams to win 5 Intel Achievement Awards, the highest technical accomplishments at the company. Dr. Zhang has published more than 80 papers at international conferences and in technical journals and is the editor of Embedded Memory for Nano-Scale VLSIs, published by Springer in 2009. He holds 55 U.S. patents in the field of integrated circuit technology. Dr. Zhang was the 2016 ISSCC Program chair and is serving as the conference chair currently. He is on the IEEE VLSI Executive Committee. Dr. Zhang is a Fellow of IEEE. He received bachelor's degree from Tsinghua University and a Ph.D. from Duke University, both in electrical engineering.

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Devices and Hardware Technologies for AI and Beyond

Keynote speech / Panelist

Terry Higashi Chairman of the Board of Directors, Rapidus Corporation / Chairman, LSTC

TETSURO HIGASHI is the first Chairman of the Board of Directors at Rapidus Corporation.
Prior to this role, Higashi had held a series of executive roles at Tokyo Electron Limited from 1990 until 2019. He was appointed to President and CEO of the company starting from 1996 when he was 46 years old, after that he become Chairman of the Board in 2003 and reappointed as President and CEO in a dual role in 2013, then resigned from his position at the company in 2019. In addition, he was appointed to Chairman of Leading-edge Semiconductor Technology Center (LSTC), an organization that conducts next-generation semiconductor research, in 2023. President, Semiconductor Equipment Materials International (SEMI) (2004-2005), Honorary Board Member since 2010. Chairman of Semiconductor Equipment Association of Japan (SEAJ) (2005-2011), Advisor since 2016.
In the spring of 2020, he was awarded the Order of the Rising Sun, Gold and Silver Star.

Keynote speech / Panelist

Tadahiro Kuroda Professor, The University of Tokyo / Director of d.lab

Tadahiro Kuroda received the Ph.D. degree in electrical engineering from the University of Tokyo. In 1982, he joined Toshiba Corporation. He was a visiting researcher at the University of California, Berkeley, from 1988 to 1990. He left Toshiba to join Keio University in 2000, and became a full professor in 2002. He was the Mackay Professor at the University of California, Berkeley, in 2007. He has been a professor at The University of Tokyo since 2019. He is the director of Systems Design Lab (d.lab) and the chairman of RaaS. He is an IEEE Fellow, an IEICE Fellow, and a chair of VLSI Symposia. He has published more than 450 papers, including 40 ISSCC papers, 29 VLSI Symposia papers, 19 CICC papers and 18 A-SSCC papers. He wrote 32 books/chapters and filed >200 patents.

Keynote speech

Hideo Ohno President, Tohoku University

Professor Hideo Ohno received the Ph.D. degree from the University of Tokyo in 1982.
He was appointed Professor at Tohoku University in 1994 and has been served as President since 2018. His current research interests include spintronics and semiconductor science and technology. Professor Ohno received the IBM Japan Science Award, the IUPAP Magnetism Prize, Japan Academy Prize, 2005 Agilent Technologies Europhysics Prize, IEEE Magnetics Society Distinguished Lecturer for 2009, Thomson Reuters Citation Laureate, JSAP Outstanding Achievement Award, David Sarnoff Award, JSAP Compound Semiconductor Electronics Achievement Award, Leo Esaki Prize, C&C Prize, ISCS Welker Award and IEEE Magnetics Society Achievement Award. He has been a fellow of IOP, JSAP, APS, IEEE and International Fellow of Royal Swedish Academy of Engineering Sciences. He is an honorary professor of Institute of Semiconductors, Chinese Academy of Sciences. He received an honorary doctorate from Université de Lorraine, France and University of Warsaw, Poland.

Panelist

Kazumi Nishikawa Principal Director, Economic Security, Policy, Minister's Secretariat, Principal Director, Trade and Economic Cooperation Bureau Ministry of Economy, Trade and Industry (Former Director, Policy Planning and Coordination Division / Former Director, IT Industry Division, Commerce and Information Policy Bureau)

Joined the Ministry of Economy, Trade, and Industry (then the Ministry of International Trade and Industry) in 1996. He was involved in launching "Japan Revitalization Strategy" as Special Assistant to Director-General of Economic and Industrial Policy Bureau, and then was posted to Singapore as Director of Industrial Research Department. 2017 After serving as Director, Healthcare Industries Division, in 2020, he became Director, IT Industry Division of Commerce and Information Policy Bureau, and in 2022, Director, Policy Planning and Coordination Division of the same Bureau, where he was involved in "Strategy for Semiconductors and the Digital Industry". In 2023, he became Principal Director , Economic Security Policy, Minister's Secretariat and Director, before assuming his additional role as Principal Director, Trade and Economic Cooperation Bureau in January 2024.

Panelist

Kazuya Masu President, Tokyo Institute of Technology

Kazuya Masu has served as the president of Tokyo Tech since April 1, 2018.
His flexible, dialogue-based leadership has guided the Institute during a time of important transformation, uniting Tokyo Tech's diverse research centers, laboratories, and units into one integrated hub. A specialist in electronic devices, integrated circuits, and wireless sensor networks, Masu earned his bachelor's, master's, and doctoral degrees in engineering from Tokyo Tech. In 1982, he took an assistant professor position at the Research Institute of Electrical Communication at Tohoku University, where he became associate professor in 1993. In 2000, Masu returned to Tokyo Tech as professor at the Precision and Intelligence Laboratory. He held professorial positions at the Integrated Research Institute from 2005 to 2010, the Solutions Research Laboratory from 2010 to 2014, and the Frontier Research Center from 2014 to 2016. For the two years prior to his inauguration, Masu served as the first director-general of the Institute of Innovative Research.

Panelist

Miyoko O. Watanabe Standing Trustee, Nihon University / President/CEO, NPO Wood Deck

She has a long experience of research in semiconductor physics at Toshiba R&D Center in Japan, and also conducted physics research as Postdoctoral Fellow in Dalhousie University, Canada, in 1986-1988.
Dr. Watanabe joined JST in 2013 and was serving there as Executive Director and Director of Office for Diversity and Inclusiveness. Dr. Watanabe was Council Member of the Science Council of Japan (SCJ) in 2011-2020, Vice-president in 2017-2020. She is now Member of SCJ, and has worked as STEM Girls Ambassador at Cabinet Office since 2016.She has served at Nihon University as Standing Trustee since Oct. 2022, and founded new non-profit organization, Wood Deck as president.