Innovation Forums 2

The Age of Industrial AI Agents: Opportunities & Challenges

An AI Agent is an intelligent 'computer' system capable of agency, i.e. independent decision making and autonomous action based on contextualized situational awareness using sensing, perception, (causal) world modeling and a nuanced understanding of one's own agency and its impact on the world. Communicative AI agents are set to revolutionize human-machine collaborative systems and workflows whereby humans and agents can engage in natural multimodal communication in the same way as humans do. The agents can operate in a continuum of delegated autonomy modes, offloading data-intensive tasks needing high throughput, invoke backend tools to carry out a series of sophisticated actions, while not compromising human oversight or judgment. While such agents are poised to transform industries as diverse as healthcare and manufacturing, significant challenges remain in creating industrial strength agents that can operate robustly in open-world settings, exhibit both common sense reasoning and formal, domain-specific knowhow, are instructable and conform to human expectations, and communicate with high precision and accuracy backed by domain-specific grounded explanations. Our panels of experts comprise academic experts, industrial innovators, and VC investors. Drawing on their own experiences, they will present and discuss the opportunities and the challenges to creating industrial-strength agents that can provide real-value to the industry and the society at large, in a risk-free and safe fashion.

Moderator: Dr. Maneesh Singh

Cofounder, and Head, AI Research Spector.AI

Bio: Dr. Maneesh Singh is a co-founder and the Head of AI R&D at Spector.AI, a startup building AI agents for industrial asset health and integrity management. Dr. Singh headed global research at Verisk till 2022 where he also founded and led the Verisk AI team. Previously, Dr. Singh also worked at Comcast, SRI International, and Siemens CT. Dr. Singh obtained his PhD from UIUC in computer vision, in 2003. Dr. Singh has developed and delivered AI models and systems for 20+ years in multiple business sectors: Industrial AI, fintech (insurance, banking, energy sectors), security and surveillance, medical imaging and diagnostics, automatic driver-assistance and intelligent traffic systems. He has authored over 60 research articles and has 38 patents (including filings), with ~5K citations, h-Index:25 and i10-index: 43. He's senior member of the IEEE and a senior program committee member at several AI research conferences. He's been an advisor on 10+ graduate theses and has mentored 50+ graduate students. His research interests span AI agents, generative models, Multimodal AI, vision & Language, reasoning systems, and neuroscience.

Speaker: Dr. Yu Huang

CEO, Roboraction.AI

Bio: Dr. Yu Huang is CEO of Roboraction.AI. He was Chief Autonomous Driving Scientist at SAIC Zone Tech, Adjust professor of Shanghai University, VP of Autonomous Driving Research at Black Sesame Technology, Chairman of Singulato USA. Dr. Huang also worked in Baidu USA, Intel (San Jose), Samsung Electronics USA and Futurewei Technology Inc. He was Moderator of Innovation Forum "Towards Autonomous Driving", IEEE Int. Conference on Multimedia Information Processing and Retrieval (MIPR'19), San Jose, CA. He has more than 40 academic papers published in international conferences and journals, 18 patents issued in US and Europe. Dr. Huang got BS degree, MS degree and Doctor degree at Xi'an Jiaotong University, Xidian University, Beijing Jiaotong University respectively. He also was an AvH research scholar (Germany) and postdoctoral associate of Beckman Inst., UIUC.

Speaker: Helen Thomas

Founder, anyquest.ai

Bio: Helen Thomas, Founder of AnyQuest, is an award-winning entrepreneur and chief executive with 30 years of experience and a track record of building companies with exponential growth. She earned her MBA from Haas Business School at UC Berkeley. Since then, she's had her tech career across EdTech, IoT, SaaS, and AI as the founding CEO of LeapFrog China (NYSE: LF, Acquired by VTech, HK), GM International & SVP Worldwide Sales at Livescribe (Acquired by Anoto, Sweden), founding President of BlueFocus Communication Group of America (300058. SZ), Co-Founder, CEO & Chairman at Touchjet, and CMO & then CEO at Dark Matter Artificial Intelligence (DMAI), Inc., a deep-tech AI unicorn (Existed).

Speaker: Shishir G. Patil

PhD Student, UC Berkeley

Bio: Shishir Patil is a Ph.D. student in Computer Science at UC Berkeley where he works closely with Joseph Gonzalez, Prabal Dutta, and Ion Stoica. He is broadly interested in teaching LLMs to use tools, and ML-Systems. He is affiliated with the Sky Computing Lab (previously RISE), Lab11, and Berkeley AI Research (BAIR).He has interned with Apple in 2023, Google Brain (now DeepMind) and Cloud in 2022, and Amazon Science Core ML in 2021. Previously, he was a Research Fellow at Microsoft Research India, where he was advised by Prateek Jain, Harsha Simhadri and Vivek Seshadri.Shishir has created and lead the Gorilla, GoEx, RAFT, OpenFunctions, and Berkeley Function Calling Leaderboard projects.

Speaker: Kar-Han Tan

Distinguished Technologist, HP Inc., Palo Alto, CA, USA

Bio: Kar-Han Tan is Distinguished Technologist at HP Inc. and Founder of Helpful Robotics LLC. At HP he is leading the development of an AI Platform to power next-generation products. Previously he was Head of R&D at Singapore Telecoms, which includes the SCALE@NTU joint lab and full-stack product engineering teams. Before Singtel Kar-Han was VP of Engineering at NovuMind, where he leads the development of full-stack artificial intelligence technologies and solutions. During his first tour with HP he led the computer vision team that built and launched the Sprout, the first PC with built-in vision and mixed reality capabilities. Sprout features include object segmentation, 3D scanning, and real-time collaboration capabilities that leverage Kar-Han's work on gaze-aware immersive communication at HP Labs. Earlier, he was manager of algorithms group at Epson R&D, where he led the invention of advanced projection and imaging technologies. He has also worked at MERL on Computational Photography. Kar-Han graduated from NUS, earned his M.S. from UCLA and Ph.D. from the University of Illinois at Urbana-Champaign, where he was a Beckman Institute Graduate Fellow.

Speaker: Amit Agarwal

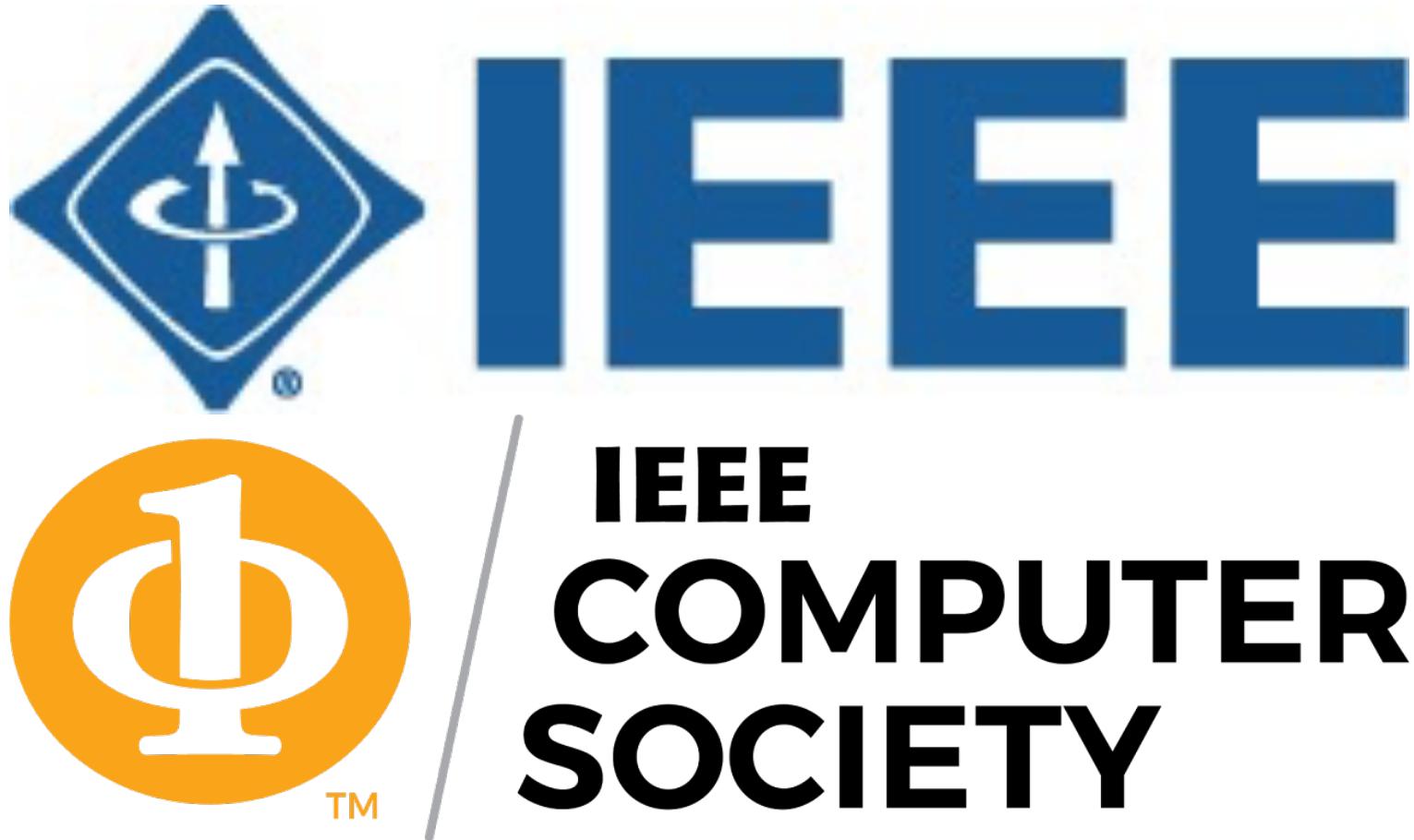**Principal Applied Scientist - Generative AI/Computer Vision, Oracle**

Bio: Amit Agarwal, a Principal Applied Scientist at Oracle Cloud Infrastructure (OCI), specializes in integrating multilingual and multimodal capabilities into Retrieval-Augmented Generation (RAG) agents. He holds a Master's in Machine Learning & AI from Liverpool John Moores University and has extensive experience in Computer Vision, NLP, and Generative AI.At Oracle, Amit leads the development of AI products for Oracle Cloud Infrastructure, customizing foundation models for enterprise use and designing data-generation frameworks for Vision and NLP models. He is currently leading research on multilingual and multimodality for Generative Agents. His prior work includes video analytics, financial news recommendation, and smart city solutions.He is also an active open-source contributor and has numerous patents and awards. Outside of work, Amit is a certified paraglider and scuba diver, reflecting his adventurous spirit and dedication to continuous learning and exploration.

Speaker: Apurv Sibal

Senior Product Manager - Tech (AWS Lambda)

Bio: Apurv Sibal is working in product at Amazon Web Services (AWS) and has 6+ years of experience working with Snowflake, Shorthills, Worldquant Predictive, Calle, and Estee. He was the co-founder, and chief executive officer of Calle Corp, a voice AI / ML platform. He published 7 research papers in international journals during his time at the Indian Institute of Technology Delhi.He is an open-source contributor to Llama Index, LangChain, and AutoGPT, and has co-authored PyBanking, a machine-learning library for risk assessment in banking. He is also the author of best selling book 'Hands On Prompt Engineering' with Wiley.