



# Autonomous Facilities

March 9, 2026, 7 am PDT

*Live Stream Seattle Washington*



**Dr. Jonti Deuri**

## **Vision-Language Models in Real-World Applications: Bridging Visual Intelligence and Human Communication**

Vision-Language Models (VLMs) are transforming the way machines interpret and communicate about the world by integrating visual perception with natural language understanding. These models combine advances in computer vision and large language models to enable systems that can describe images, answer visual questions, generate reports, guide robots, and support decision-making in complex environments. From healthcare diagnostics and autonomous driving to intelligent surveillance, e-commerce, and assistive technologies, VLMs are redefining real-world AI applications.

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This talk explores how Vision-Language Models bridge visual intelligence and human communication, highlighting recent breakthroughs, practical deployments, challenges in robustness and bias, and the future direction of multimodal AI systems that interact seamlessly with humans. Register at:

**Dr. Jonti Deuri** holds a Ph.D. in Computer Science and Engineering and currently serves as Head of the Department and Assistant Professor at the Faculty of Engineering and Technology, Sharda University, Uzbekistan. Her research interests include Artificial Intelligence, Cybersecurity, Secure Machine Learning, Soft Computing, and Network Security, with a strong focus on bio-inspired optimization and AI-driven security systems. She has authored and co-authored numerous research papers in Scopus- and IEEE-indexed journals and conferences, including IEEE international conferences, and has contributed book chapters published by Springer, Wiley, CRC Press (Taylor & Francis), IGI Global, and Cambridge Scholars Publishing. Dr. Deuri is a UGC-NET-qualified researcher, recipient of the Rajiv Gandhi National Fellowship, and holds international patents in AI-enabled systems. She actively contributes to interdisciplinary research and regularly serves as an invited speaker and resource person on advanced topics in AI, cybersecurity, and emerging technologies.

### **Beyond the Blueprint: When Buildings Begin to Think**

The evolution from traditional automation to adaptive autonomy marks a fundamental transformation in how modern infrastructure operates. Fully automated facilities are no longer limited to rule-based control systems; they are intelligent cyber-physical ecosystems capable of sensing, learning, deciding, and acting in real time. This talk explores the architectural foundations of autonomous infrastructure through a layered framework—ranging from sensing and data aggregation to intelligence, decision-making, actuation, and governance. It highlights how artificial intelligence, machine learning, and IoT integration are enabling hospitals, campuses, manufacturing units, airports, and energy grids to optimize performance, enhance sustainability, and improve operational resilience. However, the rise of autonomy also expands the cyber-physical attack surface and introduces new interdependencies and ethical considerations. The session critically examines governance mechanisms, human oversight, cybersecurity integration, and the need

for explainable AI in infrastructure systems. Rather than replacing human roles, fully automated facilities reposition humans—from operators to strategic overseers responsible for design, ethics, and accountability. The future of infrastructure is not merely technological; it is architectural and ethical. This talk provides a balanced perspective on innovation and responsibility in next-generation intelligent facilities.



***Dr. Shalini Gambhir***

**Dr. Shalini Gambhir** is an academic and researcher specializing in intelligent systems, automation architecture, and AI-enabled infrastructure. Her work focuses on the integration of machine learning, cyber-physical systems, and sustainability-driven

design in next-generation facilities. She has contributed to research and academic initiatives in areas including autonomous systems, smart infrastructure, and technology governance. Her recent work explores how AI-driven ecosystems can optimize operational efficiency while maintaining accountability, security, and ethical oversight. She actively engages in academic forums, technical sessions, and interdisciplinary collaborations aimed at bridging the gap between advanced automation technologies and responsible system design.

### **The Autonomous Mandate: Bridging Operations Management and Physical AI in Emerging Economies**

As we transition from "smart" to "fully autonomous" infrastructure, the role of Operations Management is undergoing a radical paradigm shift. This session explores the evolution of Physical AI—where facilities move beyond simple data sensing to independent perception and action. By integrating Agentic AI, Digital Twins, and robotic orchestration, modern facilities are achieving unprecedented levels of efficiency, reducing reactive maintenance by up to 80% and significantly lowering carbon footprints. Drawing on real-world implementations from Ethiopia's Digital 2030 strategy, including the Addis Ababa City Corridor Development, the automated logistics at Ethiopian Airlines, and the self-stabilizing energy grids powered by the grand Ethiopian renaissance dam (GERD), this talk demonstrates how autonomous systems are no longer a futuristic concept but a strategic necessity. Attendees will gain insight into how these technologies redefine Total Quality Management (TQM) and capacity planning, ultimately elevating the facility manager from a troubleshooter to an infrastructure strategist. This session is a call to action for leaders to embrace a "born autonomous" philosophy to build a resilient, self-healing global infrastructure.

**Abdella K. Chebo** is an assistant professor currently serving as a research and



***Abdella K. Chebo***

extension officer at Kotebe University of Education, Ethiopia. Abdella is also serving as a coordinator for center for Ethiopian Universities of Applied Sciences. Besides, he is a PhD candidate at University of Johannesburg, South Africa. He has published many research outputs in reputable international journals and conference proceedings. Besides, he is reviewing manuscripts for different reputable journals. His areas of interest in research are strategic management, entrepreneurship, firm growth, and sustainability. Moreover, Abdella supervised several students' thesis and delivered several courses for first degree and MBA students including Operations Management, Operations Research, Research Methods, Risk Management and Insurance, and etc.

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