



USC Viterbi School of Engineering

Seminar

Ming Hsieh Department of Electrical and Computer Engineering



Advances in Self-Supervised Learning: From Person Re-Identification to Legal Compliance

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Abstract: Self-supervised learning has become a fundamental paradigm for learning rich representations from unlabeled data, enabling scalable and robust machine learning across diverse application domains. However, learning highly discriminative representations remains particularly challenging in fine-grained tasks such as person re-identification (ReID). In this setting, visual differences between identities are often subtle, and manual annotation is time-consuming and error-prone. This process requires tracking the same person or object across multiple cameras, long recording periods, and diverse capture conditions, including variations in illumination, background, pose, occlusion, and interactions with the environment. Beyond computer vision, similar challenges arise in legal document compliance, where verifying whether textual passages satisfy regulatory requirements demands large-scale, fine-grained, and expert-driven annotation. This presentation highlights recent advances in self-supervised learning developed by Prof. Gabriel Bertocco, whose Ph.D. research on self-supervised learning for ReID received the 2025 Brazilian Computer Society Award for Best Ph.D. Thesis in Computer Science and the SIBGRAPI 2025 Best Ph.D. Thesis Award in Computer Vision. His research also contributed to the Intelligence Advanced Research Projects Activity (IARPA) Biometric Recognition and Identification at Altitude and Range (BRIAR) program. The talk demonstrates how representation learning without labels can address challenges in smart security, investigations, legal compliance, and other AI applications.

Bio: Dr. Gabriel Bertocco is an Assistant Professor at the Institute of Computing at the University of Campinas (UNICAMP) in the Artificial Intelligence Lab (Recod.ai), Brazil, and an AI consultant with 10+ years of experience in Machine Learning, Deep Learning, and Computer Vision.

Host: Professor C.-C. Jay Kuo, jckuo@usc.edu