

Applications of human-aware computer vision/VR/AR in manufacturing

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Abstract: We have all heard that robotics and automation are coming to take our jobs. In reality, 72% of tasks in manufacturing are still performed by human workers. Robots fail at picking and handling small parts, take up more space than humans, and slow down the line as opposed to speeding it up. So, human workers are here to stay, and manufacturers desperately need their workers to become more efficient.

Quality control on a manufacturing line is generally limited to assessing the product at the end of the process. We are building systems that enable quality checks to occur at infinitesimally small intervals, without extending the line's throughput time.

Our RetroActivity solution understands where workers are on the production line. Which step they are on within their station, and how they are performing each step. We provide them with step-by-step guidance, and also alert them when they make a mistake.

We will discuss our current and prior work on these problems, including our paper on Low-Shot First-Person Action Recognition. We will also briefly talk about potential commercial applications of such capabilities.

Bio: Zeeshan Zia is a co-founder at Retrocausal working on human activity analysis for in-situ, continuous quality control in manufacturing. Earlier, he pursued research and shipped products at Microsoft HoloLens, NEC Labs America, and Qualcomm Research, where he worked on activity understanding and 3D object localization. He held a postdoctoral fellowship at Imperial College London (2014-15), and studied for a PhD at the Swiss Federal Institute of Technology, Zurich (2009-13), researching the intersection of semantics and geometry in computer vision. He completed his undergraduate education at the Munich University of Technology in Electrical Engineering with a focus on robot vision.