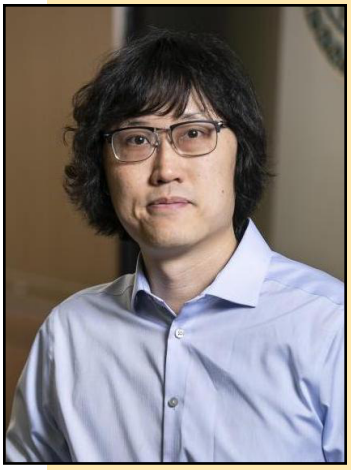

Lap Fai (Craig) Yu, PhD

Assistant Professor, Department of Computer Science
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Education

PhD, Computer Science, University of California

Key Interests

Virtual Reality | Human-Computer Interaction | Computer Graphics | Visualization | Machine Learning | Artificial Intelligence | Computational Design | Computer Vision | Robotics | Automation

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SELECT PUBLICATIONS

- Yu, L.F., *et al.* (2011). Make it home: Automatic optimization of furniture arrangement. ACM Transactions on Graphics (Proceeding of SIGGRAPH).
- Feng, T., *et al.* (2016). Crowd-driven mid-scale layout design. ACM Transactions on Graphics (Proceeding of SIGGRAPH).
- Zhang, Y., *et al.* (2019). Pose-guided level design. Proceedings of the ACM Conference on Human Factors in Computing Systems (CHI).
- Xie, B., *et al.* (2018). Exercise intensity-driven level design. IEEE Transactions on Visualization and Computer Graphics (TVCG). (Special Issue on IEEE Virtual Reality).

Research Focus

I lead the Design Computing and Extended Reality (DCXR) Group at George Mason University. What will the future of work, entertainment, and everyday life be like 5-10 years from now? To envision the possibilities, my research group conducts research in the following areas: (1) Computer Graphics; (2) Computer Vision; and (3) Human-Computer Interaction & Virtual Reality. Along this research direction, we are also interested in interdisciplinary research in topics such as: (a) Artificial Intelligence & Machine Learning to explore how we can incorporate AI/ML techniques to devise convenient, efficient and powerful design tools; (b) Robotics & Automation to explore how humans and robots can collaborate seamlessly in design and problem-solving; and (c) Cognitive Science to better understand human perception towards everyday surroundings so as to create user-friendly design tools and interfaces.

Current Projects

- Spatial Computing: we invent computer vision algorithms to achieve 3D reconstruction and affordance analysis of our surroundings and objects; to support virtual reality (VR) and augmented reality (AR) applications.
- AI for Design: we create creativity support tools driven by artificial intelligence and machine learning techniques to automatically generate designs such as architectural layouts and 3D objects.
- Computational Interaction: based on human perception data, we devise adaptive user interfaces and user experiences that are optimized to facilitate human-AI collaborations in work and everyday life.
- Computational and digital, culture, humanities, and the arts, education, engineering.