Meng-Lin Wu

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<https://menglin-wu.github.io/>  
<https://scholar.google.com/citations?hl=en&user=egUzoygAAAAJ>

Education

**Purdue University** West Lafayette, Indiana   
PhD, Computer Science 2019  
Advisor: Voicu Popescu  
Thesis: Occlusion management in conventional and head-mounted display visualization through the relaxation of the single viewpoint/timepoint constraint

**National Taiwan University** Taipei, Taiwan  
BS/MS, Physics 2007  
Advisor: Yee Hsiung  
Thesis: Search for K0L decay to light pseudoscalar sgoldstino at E391a

Research Areas

Computational Photography

* Bokeh
* HDR imaging
* Blurring/deblurring
* Multi-perspective acquisition and rendering

Computer Graphics

* AR/VR
* 3D photography

Work Experience

**Staff Engineer** at **Qualcomm Technologies, Inc.**, San Diego, California 2019 – present

* Drive quantization-aware ML training algorithms development of a team of 4. Made yearly releases to internal product teams. Manage feature requests from product teams.
* Mentored graduate students and interns on image restoration, object detection, and semantic image editing.
* Patent filed / received in the areas: i) 3D photography, ii) light field, depth, and HDR sensing, iii) image segmentation and object detection, iv) diffusion models.
* Shipped the first always-sensing mobile camera feature.

**Research Intern** at **Facebook Reality Labs**, Redmond, Washington 2018

* Researched ML-based adaptive ray casting and sparse image denoising / reconstruction.

**Autonomous Driving Engineering Intern** at **nuTonomy**, Cambridge, Massachusetts 2017

* Simulated sensors and vehicle dynamics.

**Software Developer Intern** at **Google**, Montréal, Canada 2016

* Implemented OpenGL ES 3 features and helped open-source SwiftShader (<https://github.com/google/swiftshader>).

**Intern** at **VMware**, Palo Alto, California 2014

* Implemented OpenGL 3 features and helped release OpenGL 3.3 in VMware Workstation 12 and Fusion 8.
* Contributed to the Mesa 3D graphics library (<https://gitlab.freedesktop.org/mesa/mesa>).

**Game Planning Specialist** at **International Games System**, Taipei, Taiwan 2009 – 2010

* Developed a physics engine for arcade racing games.

Academic Experience

**Computer Graphics and Visualization Lab, Purdue University**, West Lafayette, Indiana 2012 – 2019

* Improved AR/VR navigation efficiency with novel multiperspective approach.
* Rendered 3D scenes from multiple disjoint viewpoints to a single image.
* Developed real-time free-viewpoint video system using RGBD streams.

Publications

**Consistent and multi-scale scene graph transformer for semantic-guided image outpainting**CA Yang, ML Wu, RA Yeh, YCF Wang  
*International Conference on Image Processing (ICIP) 2023*

**Direct handheld burst imaging to simulated defocus**ML Wu, VRK Dayana, H Hwang  
*International Conference on Image Processing (ICIP) 2022*

**Scene graph expansion for semantics-guided image outpainting**CA Yang, CY Tan, WC Fan, CF Yang, ML Wu, YCF Wang  
*Conference on Computer Vision and Pattern Recognition (CVPR) 2022*

**Robust image outpainting with learnable image margins**CY Tan, CA Yang, SF Chen, ML Wu, YCF Wang  
*International Conference on Image Processing (ICIP) 2021*

**Automatic deictic gestures for animated pedagogical agents**SRK Kappagantula, N Adamo-Villani, ML Wu, V Popescu  
*IEEE Transactions on Learning Technologies, 2019*

**RGBD temporal resampling for real-time occlusion removal**ML Wu, V Popescu  
*SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D) 2019*

**Anchored multiperspective visualization for efficient VR navigation**ML Wu, V Popescu  
*International Conference on Virtual Reality and Augmented Reality (EuroVR) 2018*

**Efficient VR and AR navigation through multiperspective occlusion management**ML Wu, V Popescu  
*IEEE Transactions on Visualization and Computer Graphics, 2017*  
(*IEEE Virtual Reality Conference 2018* invited oral presentation)

**Digital learning activities delivered by eloquent instructor avatars: scaling with problem instance**S Anasingaraju, ML Wu, N Adamo-Villani, V Popescu, SW Cook, M Nathan, M Alibali  
*SIGGRAPH ASIA 2016 Symposium on Education*

**Multiperspective focus+context visualization**ML Wu, V Popescu  
*IEEE Transactions on Visualization and Computer Graphics, 2016*

**Animation killed the video star**V Popescu, N Adamo-Villani, ML Wu, SD Rajasekaran, MW Alibali, M Nathan, SW Cook  
*Proceedings of CHI 2014 Workshop on Gesture-based Interaction Design: Communication and Cognition*

**Study of the K0L →π0π0νν¯ decay**  
R Ogata et al., *Physical Review D, 2011*

**Search for the decay K0L → 3γ**  
YC Tung et al., *Physical Review D, 2011*

**Experimental study of the decay K0L →π0ν¯ν**  
JKA et al., *Physical Review D, 2010*

**Search for a light pseudoscalar particle in the decay K0L → π0π0 X**  
YCT et al., *Physical Review Letters, 2009*

**Search for X (214) in K0L → π0π0X (X → µ+µ-) using back-anti counter at the E391a experiment**R Ogata et al., *2009 KAON International Conference*

**Search for the decay K0L → π0ν¯ν**  
JKA et al., *Physical Review Letters, 2008*

Shipped Games

**Speed Driver 4: World Fever** (2012)

**Power Truck** (2011)

**Speed Rider 2** (2011)

**Speed Driver 3: Crash Hour** (2010)

Reviewer

IEEE Transactions on Visualization and Computer Graphics  
IEEE Visualization Conference  
IEEE Virtual Reality Conference  
IEEE International Symposium on Mixed and Augmented Reality  
IEEE International Conference on Image Processing  
IEEE International Conference on Computer Vision  
IEEE Computer Graphics and Applications  
SIGGRAPH  
SIGGRAPH Asia  
Eurographics  
Eurographics Symposium on Rendering  
Computer Animation and Virtual Worlds

Awards

Bilsland Dissertation Fellowship, Purdue University Graduate School