Yuntian Wang

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Education

University of California, Los Angeles, California, USA   *Sep 2023 – Present*
Ph.D. in Electrical and Computer Engineering
- GPA: 4.0/4.0
- **Advisor** Aydogan Ozcan

Southern University of Science and Technology, Shenzhen, Guangdong, China   *Sep 2019 – Jun 2023*
Bachelor in Electrical and Electronics Engineering
- GPA: 3.89/4.0
- **Advisor** Perry Ping Shum

Honors and Awards

Departmental Fellowship, University of California, Los Angeles   *2023-2025*
Top 10 Undergrauate Student in Engineering School, University of Science and Technology, Shenzhen   *2023*

Research Experience

Deep Learning based Diffractive Optics Optimization   *Los Angeles, CA*
Advisor: Prof. Aydogan Ozcan   *Sep 2023 – Present*
- Developed a diffractive surface-based pipeline for universal optical waveguide design, which can be streamed down to various tasks such as redirecting, filtering, splitting, and polarization maintaining.
- Designed a diffractive surface system capable of selectively transmitting different classes of images based on the polarization. Bringing innovative methods for privacy protection.

Structure Health Monitoring using Diffractive Processors   *Los Angeles, CA*
Advisor: Prof. Aydogan Ozcan   *Jan 2024 – Present*
- Designed a hybrid (optical plus digital) system utilizing deep learning to encode vibration spectrum of a building optically and decode by digital network, providing fast and high accuracy structure health monitoring solutions.

Transferable and Universal Adversarial Attacks on Computational Pathology Models   *Los Angeles, CA*
Advisor: Prof. Aydogan Ozcan   *Mar 2025 – Present*
- Developed a novel adversarial training framework using universal adversarial perturbations (UAPs) to enhance the robustness and security of ViT-based pathology foundation models.
- Engineered physically-realizable attacks modeling fluorescent particle placement to probe the failure modes of physics-consistency-based safety mechanisms in digital pathology.

Optical Diffusion-based Generative Models   *Los Angeles, CA*
Advisor: Prof. Aydogan Ozcan   *Dec 2024 – Jul 2025*
- Involved in building an optical generative model capable of generative multiple classes of images including simple dataset to Van Gogh style artwork. The optical generative model drastically decrease the computational power required for novel image generation.

Publications

Optimizing Structured Surfaces for Diffractive Waveguides   *Jun 2025*
Nature Communication 10.1038/s41467-025-60626-3 ↗
Yuntian Wang, Yuhang Li, Tianyi Gan, Kun Liao, Mona Jarrahi, Aydogan Ozcan

Structural Vibration Monitoring with Diffractive Optical Processors　Jun 2025
Arxiv Preprint [10.48550/arXiv.2506.03317](#) ↗
Yuntian Wang, Zafer Yilmaz, Yuhang Li, Edward Liu, Eric Ahlberg, Farid Ghahari,
Ertugrul Taciroglu, Aydogan Ozcan

Optical Generative Models　Oct 2024
Arxiv Preprint [10.48550/arXiv.2410.17970](#) ↗
Shiqi Chen, Yuhang Li, *Yuntian Wang*, Hanlong Chen, Aydogan Ozcan

Multifunctional Electronic Textiles by Direct 3D Printing of Stretchable Conductive Fibers　Mar 2023
Advanced Electronics Materials [10.1002/aelm.202201194](#) ↗
Yuntian Wang, Zhixun Wang, Zhe Wang, Ting Xiong, Perry Ping Shum, Lei Wei

Conferences

Deep learning-designed diffractive waveguides for multifunctional light control and scalable integration (Oral)	*Aug 2025 SPIE O+P*
Diffractive Optical Waveguides (Oral)	*Oct 2025 Fio*
Diffractive Processors for Structural Vibration Monitoring (Poster)	*Oct 2025 Fio*

Skills

Coding Languages: Python, MATLAB, Java, C for embedding system.
Machine Learning Frameworks: PyTorch, Tensorflow, JAX
CAD Tools: Zemax, Solidworks (CSWA certificant), AutoCAD
Language: Native in Chinese, Fluent in English