

Kewei XU

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Hi there !

I am a Ph.D. student in computer graphics. My current research focuses on physically-based(photo-realistic) rendering and appearance modeling, particularly mixed materials.

Education

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| University of Poitiers - XLIM UMR CNRS 7252, Poitiers, France | Mar 2023 – present |
| <ul style="list-style-type: none">• Ph.D. in Computer Science (Computer Graphics)• Advisors: Mickaël Ribardière, Benjamin Bringier, Daniel Meneveaux | |
| Sorbonne University, Paris, France | Sept 2019 – Dec 2022 |
| <ul style="list-style-type: none">• Master of Science in Computer Science and Technology (Computer Vision) - <i>with distinction (mention bien)</i> | |
| Sorbonne University, Paris, France | Sept 2018 – Sept 2019 |
| <ul style="list-style-type: none">• Bachelor of Science in Computer Science and Technology - <i>with distinction (mention bien)</i> | |
| IUT of Orsay, Paris-Sud University, Orsay, France | Sept 2016 – Sept 2018 |
| <ul style="list-style-type: none">• University Diploma of Technology (DUT) in Computer Science - <i>with high distinction (mention très bien)</i> | |

Experience

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| Research Intern, LINEACT CESI – Rouen, France | Feb 2022 – Sept 2022 |
| <ul style="list-style-type: none">• Advisors: Nicolas Ragot, Yohan Dupuis• Bring computer vision solutions into industrial digital twins by selecting high-score viewpoints to boost recognition reliability and efficiency. We propose a scoring mechanism that chooses optimal views for object recognition and extends to industrial assembly-step recognition; it outperforms random views on small datasets and stays robust under simulated robotic-arm viewpoint offsets up to 10°. Traditional clustering yields F1 score 0.6, while MobileNet with transfer learning reaches 0.9; for datasets with highly similar classes, image similarity can be fused into the score to improve discrimination. | |
| Software Engineer Intern, Sichuan Normal University – Sichuan, China | Apr 2018 – Jul 2018 |
| <ul style="list-style-type: none">• Built full-stack features for a student registration system, Implemented form validation, authorization, improving submission reliability and data integrity. Optimized API and database design to reduce latency on frequent operations. | |

Publications

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| A Discrete Polydisperse Anisotropic BSDF Model based on the Micrograin Framework | In Submission |
| <i>Kewei Xu, Simon Lucas, Mickaël Ribardière, Benjamin Bringier, Pascal Barla</i> | |
| Real surface measurement and virtual gonioradiometer for road appearance prediction | |
| <i>Kewei Xu, Mickaël Ribardière, Benjamin Bringier, Daniel Meneveaux</i> | |
| <ul style="list-style-type: none">• Published in <i>MAM - MANER London, 2024</i> | |
| Virtually Measuring Layered Material Appearance | |
| <i>Kewei Xu, Arthur Cavalier, Benjamin Bringier, Mickaël Ribardière, Daniel Meneveaux</i> | |
| <ul style="list-style-type: none">• Published in <i>Journal of the Optical Society of America A, 2024</i> | |
| View selection for industrial object recognition | |
| <i>Kewei Xu, Nicolas Ragot, Yohan Dupuis</i> | |
| <ul style="list-style-type: none">• Published in <i>IECON 2022 - 48th Annual Conference of the IEEE Industrial Electronics Society, 2022</i> | |

Personal Mini-Projects

A Real-time Rasterizer Little Demo Based on bgfx

Project page

- Implementation of a little real-time rasterization render based on bgfx. Supports orbit/pan/zoom camera via mouse and keyboard, textured object rendering with skybox/environment maps, a selectable lighting pipeline (Blinn-Phong or PBR with IBL), and real-time shadows using shadow mapping.

Implementation of Variance Soft Shadow Mapping

Project page

- Implementation of Variance Soft Shadow Mapping (VSSM) in OpenGL and compares it with some other shadow rendering techniques like percentage-closer filtering (PCF) and percentage-closer soft shadows (PCSS).

Super-Resolution for Downscaling on Oceanographic Fields

Project page

- I frame the downscaling of oceanographic fields as a super-resolution task and address it with a deep learning approach. Building on the classical SRCNN. I optimize both the network architecture and the data pipeline, and achieve satisfactory results on the NATL60 dataset.

Skills

Programming Languages: C/C++, Python, GLSL

Softwares: Mitsuba, OpenGL, Pytorch, LaTeX, Blender

Languages: English (Fluent), French (Commonly used in daily life), Chinese (Native speaker)

Hobbies: Motion design and Video editing using Adobe After Effects and Photoshop

YouTube channel