


Zitian Zhang

Université Laval

PhD Student 

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<https://zzt76.github.io/> 

EDUCATION

PhD Student in Computer Science, Université Laval 2023.09 – Present

- Research with Prof. Jean-François Lalonde, Computer Vision and Systems Lab
- Interest: Virtual Object Insertion, Image Editing, Diffusion Models
- Title: Object compositing via generative models

M.Eng. in Computer Technology, South China University of Technology 2020.09 – 2023.07

- GPA: 3.7/4
- Research with Assoc. Prof. Chuhua Xian, Multimedia Lab
- Interest: Consistent Depth Estimation, Indoor Light Estimation

B.Mgmt. in E-Commerce, Xidian University 2016.09 – 2020.07

- GPA: 3.7/4, Top 1%
- Designed and developed a 2D mini game as a game designer at Tuyou games, in Summer 2019

RESEARCH EXPERIENCE

SpotLight: Local Lighting Control with Shadows via Diffusion, 2nd author, 2024.06 – Present

- Achieved precise local lighting control without requiring additional training

Indoor Lighting Estimation Project with Meta, Main Contributor, 2024.09 – Present

- High performance HDR indoor environmental lighting estimation

ZeroComp: Zero-shot Object Compositing from Image Intrinsic via Diffusion, 1st author, 2023.09 – 2024.10

- Tackled the challenge of enabling realistic 3D object compositing **without relying on paired composite-scene image datasets**
- Designed and implemented a diffusion-based model trained solely on synthetic indoor RGB and intrinsic dataset, while **generalizing well across various scenes**
- Extended the framework applicability to 2D object compositing and material editing tasks
- Created an evaluation dataset, featuring automatically generated, realistic object composites
- Accepted to **WACV 2025**; Project page: <https://lvsngithub.io/ZeroComp>

Delving into Multi-illumination Depth Estimation, 2nd author, 2021.07 – 2023.06

- Introduced a single-view multi-illumination RGB-D dataset for enhancing training
- Developed a post-processing module, enabling a robust prediction in changing environments
- Accepted to IEEE Transactions on Multimedia

PUBLICATIONS

- [1] **Zitian Zhang**, Frédéric Fortier-Chouinard, Mathieu Garon, Anand Bhattad, and Jean-François Lalonde. ZeroComp: Zero-shot object compositing from image intrinsics via diffusion. IEEE/CVF Winter Conference on Applications of Computer Vision, 2025
- [2] Yuan Liang, **Zitian Zhang**, Chuhua Xian, and Shengfeng He. Delving into multi-illumination monocular depth estimation: A new dataset and method. IEEE Transactions on Multimedia, 2024
- [3] Chuhua Xian, Kun Qian, **Zitian Zhang**, and Charlie CL Wang. Multi-scale progressive fusion learning for depth map super-resolution. arXiv preprint arXiv:2011.11865, 2020

PUBLICATIONS UNDER REVIEW

- [1] Frédéric Fortier-Chouinard, **Zitian Zhang**, Mathieu Garon, Anand Bhattad, and Jean-François Lalonde. SpotLight: Local Lighting Control with Shadows via Diffusion

PATENT IN APPLICATION

Zitian Zhang, Frédéric Fortier-Chouinard, Mathieu Garon, Anand Bhattad, and Jean-François Lalonde, Systems and Methods for Compositing a Virtual Object in a Background Image, U.S. Patent Application N° 63/705,195 filed on October 9, 2024

INTERN EXPERIENCE

Unreal Engine Game Developer Intern

Oasis: A Simulation Game | Unreal Engine Group, Alibaba Lingxi Interactive, 2022.06-2022.08

- Driven by a passion for games and rendering, created a functional and engaging mini simulation game independently, utilizing Unreal Engine 4
- Designed and implemented the scene setup, game logic and UI using Unreal Engine 4 blueprints and C++
- Developed a basic AI for NPCs using behavior trees, ensuring smooth and dynamic gameplay

Rendering Developer Intern

Real-time and Cloud Renderers for Fashion Industry | Revobit (Startup), 2021.12-2022.05

- Addressed the need for high-quality, photo-realistic rendering solutions tailored to the digital fashion industry, enhancing the presentation of apparel and accessories
- Diagnosed and resolved a rendering issue related to transparent materials by applying energy distribution principles in BSDF reflection
- Optimized the real-time rendering system and customized shader pipelines for the physically-based rendering framework

SKILLS

Python, C++, PyTorch, Blender, Unreal Engine, Diffusion Models, Light Estimation

SERVICE

TVCG reviewer, 2024.11 – Present