

Xuanda Yang

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EDUCATION

University of California San Diego

Ph.D. in Computer Science

Sep. 2021 – Jun. 2026 (expected)

Zhejiang University

B.Eng. in Computer Science and Technology

Sep. 2016 – Jun. 2020

- Cumulative GPA: 3.82 / 4.0, Major GPA: 3.90 / 4.0

PUBLICATIONS

QuanTaichi: A Compiler for Quantized Simulations

SIGGRAPH 2021

Yuanming Hu, Jiafeng Liu, Xuanda Yang, Mingkuan Xu, Ye Kuang, Weiwei Xu, Qiang Dai, William T. Freeman, Fredo Durand

EXPERIENCE

Alibaba Cloud, Platform of AI

Mar. 2021 – Jul. 2021

Research Intern

- Worked on internal deep learning compiler stack
- Design new operator fusion and code generation for memory-intensive workload based TensorFlow XLA
- Work submitted to SOSP 2021

Zhejiang University & Massachusetts Institute of Technology

Dec. 2020 – Jan. 2021

Research Assistant (Remote), collaborated with Yuanming Hu

- Designed and Implemented QuanTaichi, a quantization compiler for computer graphics
- Provided a new quantization system enabling high performance quantization applications across platforms
- Significantly reduced memory consumption of typical physical simulation applications
- Accepted by SIGGRAPH 2021: <https://yuanming.taichi.graphics/publication/2021-quantaichi/>

UCSB Center of Interactive and Visual Computing, UCSB

Jun. 2020 – Dec. 2020

Research Assistant (Remote), advised by Prof. Lingqi Yan

- Implemented classic rendering algorithms including path tracing, bidirectional path tracing and bidirectional path tracing with probabilistic path connections
- Designed and implemented a new path tracing algorithm based on probabilistic path connection techniques and conducted qualitative and quantitative comparisons with existing rendering algorithms
- Worked on a new variance reduction method in rendering by leveraging control variants

State Key Lab of CAD & CG, Zhejiang University

Aug. 2018 – Jun 2020

Research Assistant, advised by Prof. Hongzhi Wu

- Designed and built a novel acquisition framework that produces high-quality reflectance on non-planar object
- Designed and built a structured light 3D scanning system based on phase shifting, leveraging learning-based approaches to generate optimized patterns for better acquisition
- Designed and built a handheld mobile appearance acquisition prototype, making it possible for amateur users to capture high-quality object appearance at hand

Google Summer of Code 2020

May. 2020 – Sept 2020

Student Developer (Remote), advised by Jukka Lehtosalo and Michael J. Sullivan

- Designed and implemented a low-level IR for mypyc, a high-performance compiler for typed Python
- Significantly improved mypyc's performance on various performance-critical operations
- Made the new experimental x86 assembly backend from impossible to practical

TEACHING

GAMES 201: Advanced Physics Engines 2020: A Hands-on Tutorial
Teaching Assistant, lectured by Yuanming Hu

May. 2020 – Aug 2020

SELECTED PROJECTS

Mypy

Nov. 2019 – Present

Project Collaborator

- Active contributes to mypy since Nov. 2019 and is now the 11th contributor of all time
- Significantly improve the expressiveness of mypyc IR
- Review new PRs and maintain the project on daily basis

Automatic Video Object Cutout System

May. 2019 - Jun. 2019

- Designed a system to automatically segment interesting foreground regions from continuous frames of videos
- Implemented iterative post-processing and mixture-based discriminative model to improve details
- Implemented a user-friendly GUI with QT, enabling interactive user refinement to correct small errors

Deep High Dynamic Range System for Dynamic Scenes

Oct. 2019 - Nov. 2019

- Implemented a system from SIGGRAPH 2017 paper to generate high quality HDR images of dynamic scene
- Conducted quantitative and qualitative analysis on impacts of different flow methods as initial alignment
- Proposed a modified network architecture to generate less artifact and more visual pleasant results

SELECTED AWARDS AND HONORS

- Outstanding undergraduate thesis award of Zhejiang University (1%) 2020
- Zhejiang Daily & Alibaba Scholarship (3%) 2019
- Zhejiang Provincial Government Scholarship (5%) 2018
- Scholarship for Outstanding Merits of Zhejiang University 2018, 2019
- Scholarship for Academic Excellence of Zhejiang University 2018, 2019
- First Prize of ASC18 Student Supercomputer Challenge 2018

MISCS

- **Programming Languages:** C/C++, Python, CUDA
- **Frameworks and Tools:** PBRT, TensorFlow, OpenGL, OpenMP, MPI
- **Languages:** Chinese (Native), English (Fluent)
- **Open-Source Contribution:** mypy, taichi