Qi, Wu 吴奇

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COMPUTER SCIENCE SKILLS

Programming Languages: C/C++, CUDA, ISPC, Python, JavaScript/CSS/HTML, Fortran
Graphics Libraries: OSPRay, OptiX, OpenGL, WebGL

EDUCATION

University of California - Davis, GPA 4.000 — 09/2018 – 06/2024 (Expected), Davis, CA, United States
PhD Candidate in Computer Science

SCI Institute, University of Utah, GPA 3.976 — 08/2016 – 05/2018, Salt Lake City, UT, United States
Master's in Computing, Graphics & Visualization Track

Hong Kong University of Science and Technology (HKUST), First Class Honor — 09/2012 - 06/2016, Hong Kong, China
Bachelor of Science in Physics, Physics & Mathematics Option

Ecole Polytechnique Fédérale de Lausanne (EPFL) — 02/2015 - 08/2015, Lausanne, Switzerland
Academic Exchange in Physics

EXPERIENCE

Graduate Research Assistant, University of California - Davis, Kwan-Liu Ma — 09/2018 – Present, Davis, California
- Conducting research in the field of expressive scientific visualization and high-fidelity rendering.

Summer Internship, Intel Corporation, Advanced Rendering Technology Team — 07/2021 – 09/2021, Santa Clara, California
- Research on deep-learning-assisted direct storage streaming for real-time rendering.

Summer Internship, Intel Corporation, Advanced Rendering Technology Team — 07/2020 – 09/2020, Santa Clara, California
- Research on efficient direct storage streaming for volumetric data.

Summer Internship, Intel Corporation, Software Engineering for Computer Graphics — 07/2019 – 09/2019, Hillsboro, Oregon
- SIMD optimizations of the traversal and the scheduling algorithm for hardware ray tracing.

Graduate Research Aide, Argonne National Laboratory, Joseph A. Insley & Silvio Rizzi — 07/2018 – 09/2018, Chicago, Illinois
- Developed a CPU rendering system inside the scalable and interactive parallel volume rendering – VL3.
- Developed two remote visualization clients for parallel volume rendering on supercomputer – Theta.

Graduate Research Assistant, University of Utah, Chuck Hansen — 12/2016 – 05/2018, Salt Lake City, Utah
- Code modernization for many-core Intel architectures using the OSPRay ray-tracing library.
- Integrated the OSPRay ray-tracing library into the visualization software – Visit.

Capstone Research, Hong Kong University of Science and Technology, Michael Wong — 09/2015 – 06/2016, Hong Kong, China
- Statistical analysis of neuron activities during monkey saccades using machine learning techniques.

Summer Student, European Organization for Nuclear Research (CERN), Mathieu Benoit — 06/2015 - 08/2015, Geneva, Switzerland
- Developed an auto-optimization program inside ALLPIX, a simulation software for silicon pixel detector.

Undergraduate Research Program, Hong Kong University of Science and Technology, Nian Lin — 06/2013 - 12/2014, Hong Kong, China
- Analyzed images obtained from low-temperature scanning tunneling microscopy (STM).
- Used STM to measure and manipulate molecular properties and states on single molecular level.
- Implemented a Monte Carlo simulation program for supra-molecular self-assembly.

PUBLICATION

- **Qi Wu**, Michael J. Doyle, Kwan-Liu Ma "A Flexible Data Streaming Design for Interactive Visualization of Large-Scale Volume Data." The Eurographics Symposium on Parallel Graphics and Visualization (2022)
- **Qi Wu**, Tyson Neuroth, Oleg Igouchkine, Konduri Aditya, Jacqueline H. Chen, Kwan-Liu Ma "DIVA: A Declarative and Reactive Language for in situ Visualization." IEEE Large Scale Data Analysis and Visualization Symposium (2020)
- Mengjiao Han, Ingo Wald, Will Usher, **Qi Wu**, Feng Wang, Valerio Pascucci, Charles D. Hansen, Chris R. Johnson. "Ray Tracing Generalized Tube Primitives: Method and Applications." Computer Graphics Forum (2019).
- **Qi Wu**, Will Usher, Steve Petruzza, Sidharth Kumar, Feng Wang, Ingo Wald, Valerio Pascucci, Charles D. Hansen. "VisIt-OSPRay: Toward an Exascale Volume Visualization System." The Eurographics Symposium on Parallel Graphics and Visualization (2018).
- Wang, Feng, Ingo Wald, **Qi Wu**, Will Usher, Chris R. Johnson. "CPU Isosurface Ray Tracing of Adaptive Mesh Refinement Data." IEEE Visualization Conference (2018).
- Guillaume Favelier, Charles Gueunet, Attila Gyulassy, Julien Kitware, Joshua Levine, Jonas Lukasczyk, Daisuke Sakurai, Maxime Soler, Julien Tierny, Will Usher, **Qi Wu**, "Topological data analysis made easy with the Topology ToolKit." IEEE Visualization Conference Tutorial (2018).
- Lin, Tao, **Qi Wu**, Jun Liu, Ziliang Shi, Pei Nian Liu, Nian Lin. "Thermodynamic versus Kinetic Control in Self-Assembly of Zero, One, Quasi-two and Two Dimensional Metal-Organic Coordination Structures." The Journal of Chemical Physics (2015).

PRESENTATIONS

- **IEEE Visualization Conference Tutorial,** "Topological Data Analysis Made Easy with the Topology ToolKit" (2018)
- **University of Utah CCMSC Annual Meeting,** "VisIt-OSPRay: Toward an Exascale Volume Visualization System" (2018)
- **University of Utah CCMSC Annual Meeting,** "Visit-OSPRay: Scalable Volume Rendering on Intel KNL CPUs" (2017)
- **Super Computing Conference University of Utah Booth,** "Volume Rendering with VisIt-OSPRay" (2016)
- **Physical Society of Hong Kong (PSHK) Conference,** "Monte Carlo Simulation for 2D Supramolecular Self-Assembly" (2014)
- **HKUST UROP,** "The effect of metal atoms in the MOFs self-assembly" (2014)

AWARDS

University of Utah Best Data Visualization Project Prize Winner (2016)
First Honor Classification on Graduation (CGA A- and above), HKUST (2016)
Dean's List of HKUST for Academic Excellence (2013 & 2016)
HKUST Ho & Ho Foundation Undergraduate Full Scholarship for 4 Years (2012~2016)
Finalist of Mr. Armin & Mrs. Lillian Kitchell Undergraduate Research Award (2014)