

Dolores Miao

University of California, Davis
Department of Computer Science
2356 Academic Surge, Davis, CA 95616

Other name(s): Wenjun Miao
<https://doloresmiao.github.io/>
wjmiao (at) ucdavis.edu

Education

University of California, Davis <i>Computer Science, PhD</i>	Sept 2020 – Present <i>Davis, CA, USA</i>
Fudan University <i>Communication Science and Engineering, BEng</i>	Sept 2003 – July 2007 <i>Shanghai, China</i>

Research Experience

Graduate Student Researcher <i>University of California, Davis</i> <ul style="list-style-type: none">Academic Advisor: Cindy Rubio-GonzálezUse various tools (ROSE Compiler, LLVM IR, Clang plugins, scikit-learn, C++ and Python) to research numerical correctness in scientific programs using floating-point arithmetic.	July 2021 – Present <i>Davis, CA, USA</i>
Computer Science Graduate Intern <i>Lawrence Livermore National Laboratory</i> <ul style="list-style-type: none">Developed a tool that detects floating-point exceptions in AMD HIP kernels.	June 2024 – Sept 2024 <i>Livermore, CA, USA</i>
Computer Science Graduate Intern <i>Lawrence Livermore National Laboratory</i> <ul style="list-style-type: none">Worked on software testing with source code mutations in OpenMP program directives in order to generate program variants with performance speedup.	June 2023 – Sept 2023 <i>Livermore, CA, USA</i>
Computer Science Graduate Intern <i>Lawrence Livermore National Laboratory</i> <ul style="list-style-type: none">Floating-point correctness research projects.	June 2022 – Sept 2022 <i>Livermore, CA, USA</i>

Research Publications

- Miao, D., Laguna, I., Georgakoudis, G., Parasyris, K., & Rubio-González, C. (2024, August). An Automated OpenMP Mutation Testing Framework for Performance Optimization. In *Parallel Computing (PARCO)*, Volume 121
- Miao, D., Laguna, I., & Rubio-González, C. (2024, June). Input Range Generation for Compiler-Induced Numerical Inconsistencies. In *International Conference on Supercomputing (ICS'24)*.
- Miao, D., Laguna, I., Georgakoudis, G., Parasyris, K., & Rubio-González, C. (2024). MUPPET: Optimizing Performance in OpenMP via Mutation Testing. In *Proceedings of the 15th International Workshop on Programming Models and Applications for Multicores and Manycores (PMAM'24)*.
- Miao, D., Laguna, I., & Rubio-González, C. (2023, May). Expression Isolation of Compiler-Induced Numerical Inconsistencies in Heterogeneous Code. In *International Conference on High Performance Computing (ISC'23)*.

Awards & Honors

Hans Mauer Award for Best Research Paper

ISC High Performance

2023

Teaching Experience

Teaching Assistant - ECS 140A: Programming Languages

University of California, Davis

Spring 2023, 2024

Davis, CA, USA

Industry & Other Experience

Assistant Technical Director

Virtuos Games

Jan 2017 - Feb 2021

Shanghai, China

Lead Software Engineer

Virtuos Games

Aug 2011 - Dec 2016

Shanghai, China

Software Engineer

Virtuos Games

Feb 2007 - Jul 2011

Shanghai, China

Assistant Technical Director work summary:

- Work with teams and technical director to make technical decisions w.r.t. project proposals and technical design documents for projects
- Managing teams, tracking work progress and career growth of team members
- Feasibility research, complex feature implementation, and fixing critical bugs

Notable projects:

- FINAL FANTASY X|X-2 HD Remaster (PS4, PC, Switch & Xbox one)
- Final Fantasy XII Zodiac Age (PS4, PC, Switch & Xbox one)
- Bioshock Infinite (Switch)
- XCOM 2 Collection (Switch)
- Tales from the Borderlands (Switch)

Specialized Skills

Programming Languages: C/C++/C# (advanced), Python/FORTRAN (intermediate)

Tools: CUDA, ROCm, Shader languages (HLSL/GLSL), OpenGL, Direct3D 11

Skills: parallel programming with pthread, OpenMP; Clang plugins, LLVM passes