

# Dolores Miao

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## Education

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

## Research Experience

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<b>Graduate Student Researcher</b> <i>University of California, Davis</i>	July 2021 – Present <i>Davis, CA, USA</i>
<ul style="list-style-type: none"><li>• Academic Advisor: Cindy Rubio-González</li><li>• Use various tools (ROSE Compiler, LLVM IR, Clang plugins, scikit-learn, C++ and Python) to research numerical correctness in scientific programs using floating-point arithmetic.</li></ul>	

<b>Computer Science Graduate Intern</b> <i>Lawrence Livermore National Laboratory</i>	June 2023 – Sept 2023 <i>Livermore, CA, USA</i>
<ul style="list-style-type: none"><li>• Worked on software testing with source code mutations in OpenMP program directives in order to generate program variants with performance speedup.</li></ul>	

<b>Computer Science Graduate Intern</b> <i>Lawrence Livermore National Laboratory</i>	June 2022 – Sept 2022 <i>Livermore, CA, USA</i>
<ul style="list-style-type: none"><li>• Floating-point correctness research projects.</li></ul>	

## Research Publications

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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

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**Hans Mauer Award for Best Research Paper**  
*ISC High Performance*

2023

### *Teaching Experience*

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**Teaching Assistant - ECS 140A: Programming Languages**  
*University of California, Davis*

Spring 2023, 2024  
*Davis, CA, USA*

### *Industry & Other Experience*

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**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*

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

**Tools:** Clang/LLVM, CUDA, Shader languages (HLSL/GLSL), OpenGL, Direct3D 11

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