

# Wentao Cai

COMPUTER SCIENCE DEPARTMENT · UNIVERSITY OF ROCHESTER

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Second year PhD student interested in concurrent algorithms, memory persistency, and software transactional memory (STM).  
Experience in 3D rendering, computer vision, and data mining.

## Education

### University of Rochester

#### M.S. and Ph.D. Student in Computer Science

- Advisor: Prof. Michael L. Scott
- GPA: 3.93/4.00

Rochester, NY

Sep. 2016 - Present

### Xidian University

#### B.E. in Computer Science and Technology

- GPA: 3.62/4.00

Xi'an, China

Aug. 2012 - Jul. 2016

## Publications

### Interval-Based Memory Reclamation

Haosen Wen, Joseph Izraelevitz, Wentao Cai, H. Alan Beadle, and Michael L. Scott

Proceedings of the 23rd ACM SIGPLAN Symposium on Principles and Practice of Parallel Programming (PPoPP), 1-13.

Vienna, Austria

Feb. 2018

## Projects

### Nonblocking Persistent Memory Allocator

#### Supervised by Prof. Michael L. Scott

- Designing a nonblocking persistent memory allocator for non-volatile memory (NVM).

University of Rochester

Aug. 2018 - Present

### Benchmark Suite for Persistent STM

#### Supervised by Prof. Michael L. Scott

- Developing a suite to analyze the performance of failure atomicity mechanisms for persistent memory.

University of Rochester

Mar. 2018 - Present

### Persistent Word-Based STM

#### Supervised by Prof. Michael L. Scott

- Building a persistent word-based STM that is nonblocking.
- Integrating benchmarks and other systems we are comparing against to evaluate our new STM.

University of Rochester

Mar. 2018 - Present

### Interval-Based Memory Reclamation

#### Supervised by Prof. Michael L. Scott

- Designed nonblocking reclamation schemes that avoid unbounded memory reservation with low overhead.
- Set up experiments and coauthored a paper in PPoPP'2018.

University of Rochester

Jan. 2017 - Aug. 2017

### Synchronization Framework for Building Ordered Maps

#### Supervised by Prof. Michael L. Scott

- Helped develop a framework for building nonblocking trees.
- Investigated and implemented various concurrent data structures.

University of Rochester

Jan. 2017 - Present

### Personalized Computerized Cognitive Training (CCT) Program

#### Supervised by Prof. Jiebo Luo

- Investigated the correlation between ECGs and performance in CCT.

University of Rochester

Jan. 2017 - Apr. 2017

### 3D Rendering System

#### Bachelor's Thesis

- Developed a 3D interactive rendering system for STL files.
- Designed a topological reconstructing algorithm to correct facet normals.

Xidian University

Jan. 2016 - Jun. 2016

## Human Age Estimation from Face Images

Supervised by Dr. Haihong Zheng

- Studied in human age estimation, and implemented an estimation system.

*Xidian University*

Sep. 2014 - Dec. 2014

## Teaching Assistant

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### CSC 2/454: Programming Language Design & Implementation

Led by Professor Chen Ding

Led by Professor Michael L. Scott

- Introduced the design and implementation of programming languages.

*University of Rochester*

Fall 2018

Fall 2017

### CSC 2/478: Computer Security Foundations

Led by Professor John Criswell

- Covered the foundation of computer security, including access controls, information flow, attacks, and malware.

*University of Rochester*

Spring 2018

## Skills

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- C/C++, Python, OCaml, MATLAB, C#, SQL, UNIX Shell Scripting, LaTeX
- Parallel Programming, Object-Oriented Programming

## Honors & Awards

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2016 **Outstanding Graduate**, Xidian University

*Xi'an, China*

2015 **Second Prize Scholarship**, Xidian University

*Xi'an, China*

2014 **Second Prize**, Xidian ACM/ICPC

*Xi'an, China*

2013 **Top10**, 2013 National Tencent Innovation Clubs Logo Design Competition

*China*

2013 **Second Prize Scholarship**, Xidian University

*Xi'an, China*

## Extracurricular Activity

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### Xidian Multimedia Studio

Manager & Technical Advisor

- Maintained network, audio and lighting systems in the Xidian Little Theater.

*Xi'an, China*

Sep. 2012 - Sep. 2014

### Xidian Tencent Innovation Club (XDTIC)

Designer & Member

*Xi'an, China*

Sep. 2012 - Jan. 2014

### Qiudi Literature Society

Vice Director & Editor

*Xi'an, China*

Sep. 2012 - Sep. 2014