

# Yu Feng

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University of Rochester  
Computer Science

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## RESEARCH INTERESTS

My main research interest is algorithm and architecture co-design for fast and energy-efficient mobile systems. Currently, I am recently focusing on optimizing image processing pipelines and mobile systems for real-time continuous vision.

## EDUCATION

**University of Rochester** *2017 - Now*  
Ph.D. candidate, Computer Science.  
Advisor: Yuhao Zhu  
**Carnegie Mellon University** *2015 - 2017*  
M.S., Material Science.  
Advisor: Anthony Rollett  
**Tianjin Polytechnic University** *2011 - 2015*  
B.S., Material Science.  
Advisor: Xiaoping Liang

## HONORS & AWARDS

Graduate Fellowship, Carnegie Mellon University *2016 - 2017*  
Second-class Scholarship, Tianjin Polytechnic University *2013 - 2015*  
Thrid-class Scholarship, Tianjin Polytechnic University *2012 - 2013*

## WORKING EXPERIENCE

**GoogleAi, Intern @ Google** *06/2019 - 09/2019*

- Worked on Creative Code Prefetching and Google Wide Profile.
- Improved Google workloads by cleverly designed “software” prefetching.

## PUBLICATION

### Conference Articles

- Yu Feng, Yuhao Zhu  
PES: Proactive Event Scheduling for Energy-Efficient Mobile Web Computing (ISCA, 2019)
- Yu Feng, Paul Whatmough, Yuhao Zhu  
ASV: Accelerated Stereo Vision System (MICRO, 2019)

### Journal Articles

- Yu Feng, Sudipto Mandal, Brian Gockel, Anthony D. Rollett  
Extension of the Mechanical Threshold Stress Model to Static and Dynamic Strain Aging: Application to AA5754-O  
November 2017, Volume 48, Issue 11, pp 5591–5607, MMTA

## RESEARCH EXPERIENCE

**Department of Computer Science, University of Rochester**  
*Algorithm and Hardware Co-design for Stereo Vision* *08/2018 - 05/2019*

- Proposed an energy-efficient framework for continuous stereo vision to improve real-time stereo vision throughput on mobile devices.

- Introduced a new hierarchical optimization on DNN computation based on the unique characteristics in stereo vision algorithms by partial evaluation and motion compensation.
- Coupled with the new system framework, introduced a new hardware support for stereo vision application.

*Proactive Event Scheduling for Mobile Web Computing* 12/2017 - 07/2018

- Proposed a new scheduling framework by proactively predicting future event in order to scale up the optimization scope.
- Introduced a new model for web event prediction by combining program analysis on web with machine learning from recent history.
- Formulated our task scheduling optimization model into a constrained problem and dynamically solve the problem using integer linear programming on-the-fly.

**Department of Material Science, Carnegie Mellon University**

*Constitutive Modeling of Plastic Strain Aging* 09/2015 - 05/2017

- Introduced a new constitutive model for dynamic and static aging for metallic materials for predicting metallic aging behaviors.
- Proposed a fast optimization routine for convergence of model fitting process.
- Applied the constitutive model to various metals such as AA-5754-O and Ti-64 serial and achieved a considerable accuracy close to experiment results.

**ACADEMIC PROJECT**

**Department of Computer Science, University of Rochester**

*Distributed Version Control System* 10/2017 - 11/2017

- Built a light-weight, robust and fast-to-deport DVCS in Ruby.
- Leveraged Unix built-in commands, supported common users requirements.

**Department of Computer Science, Carnegie Mellon University**

*Twitter Analytics Web Service* 02/2017 - 05/2017

- Built a distributed server to handle large-content, high-frequency query activities by twitter users in Amazon Web Service platform.
- Designed search-friendly data structure in the backend database, and used forwards mechanism to balance the loads from different machines and maximize the throughput of user query.
- Applied late-evaluation policy and strong-consistent model to allow users to update their new profile and twitters without sacrificing throughput.

*Mini-Social Network System* 02/2017 - 05/2017

- Built a mini-social network system on AWS with a simplified version of Facebook user interface.
- Leveraged the characteristics of SQL and NoSQL data structure to store the different user information and built social network relationship for a friend-recommendation system.

*Dynamic water molecular simulation Platform* 09/2016 - 12/2016

- Used OpenGL to build a real time simulation platform for monitoring molecular simulation in real time at atomic level.
- Supported 360 rotation and zoom in/out with 6 degrees of freedom for researchers to examine any simulation details during the simulation.
- Support four state-of-the-art water molecular simulation models.

## **TEACHING**

### Teaching Assistant

- @CMU: Engineering Mechanics I (Undergraduate)
- @CMU: Introduction to Material Science (Graduate)
- @UR: Dynamic Language and Software Development (Graduate)
- @UR: Computer Organization (Graduate)

## **COURSES**

### **University of Rochester**

- Programming language design and implementation
- Dynamic language and software development
- Computer Vision
- Parallel and Distributed System
- Synthesis of Program
- Mobile Systems Architecture
- Operating System
- Advanced Compilers
- Computer Models and Limitations

### **Carnegie Mellon University**

- Introduction to Computer systems
- Molecular Simulation
- Data Structures for Application Programmers
- Cloud Computing
- Algorithms and Advanced Data Structure