

# YIPENG HUANG

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## EDUCATION

<b>Columbia University</b>	New York, NY
<i>PhD in Computer Science</i>	In Progress
<i>MPhil in Computer Science</i>	2015
<i>MS in Computer Science; GPA 3.87/4.33</i>	2013
<i>BS in Computer Engineering; Minor in Economics; magna cum laude; GPA 3.85 / 4.33</i>	2011

## RESEARCH INTEREST

- Applications of analog computation in mobile robotics and scientific computation
- System software profiling and benchmarking of mobile robotics

## HONORS AND AWARDS

- Awarded DARPA Small Business Technology Transfer grant to investigate analog computing
- Computer Engineering Award of Excellence
- Tau Beta Pi Engineering Honors Society
- Nominated for The George Vincent Wendell Memorial Medal

## PUBLICATIONS

- Yipeng Huang, Ning Guo, Mingoo Seok, Yannis Tsividis, Simha Sethumadhavan, "Evaluation of an Analog Accelerator," ACM/IEEE International Symposium on Computer Architecture (ISCA), 2016, submitted for review
- Jonathan Weisz, Yipeng Huang, Florian Hans Michael Lier, Simha Sethumadhavan, Peter Allen, "RoboBench: Towards Sustainable Robotics System Benchmarking," IEEE International Conference on Robotics and Automation (ICRA), 2016, accepted
- Ning Guo, Yipeng Huang, Tao Mai, Shavil Patil, Chi Cao, Mingoo Seok, Simha Sethumadhavan, Yannis Tsividis, "Low-Energy Hybrid Analog/Digital Approximate Computation in Continuous Time," IEEE Journal of Solid-State Circuits (JSSC), 2015, invited for the special issue, submitted for review
- Ning Guo, Yipeng Huang, Tao Mai, Shavil Patil, Chi Cao, Mingoo Seok, Simha Sethumadhavan, Yannis Tsividis, "Continuous-Time Hybrid Computation with Programmable Nonlinearities," European Solid-State Circuits Conference (ESSCIRC), 2015 - 41st, vol., no., pp.279-282, 14-18 Sept. 2015
- Simha Sethumadhavan, Adam Waksman, Matthew Suozzo, Yipeng Huang, Julianna Eum, "Trustworthy hardware from untrusted components," Communications of the ACM 58, 9 (August 2015)

## TEACHING EXPERIENCE

- T.A., Computer Hardware Design, course in RTL design, validation, synthesis Fall 2012 & 2014
- T.A., Fundamentals of Computer Systems, course in logic and architecture Fall 2010
- T.A., Object Oriented Design in Java Spring 2010

## RESEARCH EXPERIENCE

### **Hybrid Continuous-Time Scalable Computation for Cyber-Physical Systems** Columbia University

*Adviser: Dr. Simha Sethumadhavan* 2012 -

- Research a hybrid digital-analog architecture for accelerating differential equation solvers
- Characterize computational workloads in robotics, sensory processing, and scientific computation
- Develop applications, compiler, and instruction set to connect workload to novel microarchitecture

### **Security Engineering for Backdoor-Free Crypto Hardware** Columbia University

*Adviser: Dr. Simha Sethumadhavan* 2011

- Developed an integrated circuit security design pattern to defend against malicious components
- Implemented Advanced Encryption Standard and random number generation in hardware

### **Location-to-Service Translation (LoST) Protocol JavaScript API** Columbia University

*Adviser: Dr. Henning Schulzrinne* 2010

- Developed an API to allow users to search for services using location information

## PROFESSIONAL EXPERIENCE

### **Allegory Labs, LLC** New York, NY

*Founder & CEO* Nov. 2015 -

- Investigator at research start-up for analog co-processing for scientific computing

### **Boeing** Seattle, WA

*Information Technology Career Foundation Program* June 2011 - July 2012

- Developed prototype middleware to allow a computational fluid dynamics application run on multiple cores

### **ZS Associates** New York, NY

*Business Information Specialist Intern* Summer 2010

- Developed and validated market reports for client sales managers using SAS, Access, and Excel

### **Hutchison Port Holdings** Hong Kong

*Information Technology Intern* Summer 2009

**Inside New York***Layout Editor / Graphic Designer*

New York, NY

Summer 2008

**LEADERSHIP & SERVICE****FIRST Robotics Competition***Team Mentor*

Bronx, NY

Spring 2014

- Mentor high school robotics competition team in programming & control

**Washington Aerospace Scholars Program***Summer Residency Mentor*

Seattle, WA

Summer 2012 &amp; 2013

- Mentor high school students during a six-day program in designing a human mission to Mars

**Columbia Daily Spectator***Staff Director, Design Editor, Deputy Production Editor*

New York, NY

Sept. 2007 – Dec. 2010

- Led 27-person all-volunteer staff to design newspaper with circulation of 5,000 daily
- Managed newspaper's recruiting and training process for 400 new students

**Boeing IT STEM**

Seattle, WA

- Visit high schools to provide college admissions guidance and encourage pursuit of STEM majors

**SKILLS & ACTIVITIES**

- *Hardware:* SystemC, SystemVerilog HDL, Synopsys, Cadence, Altera EDA tools
- *Software:* C/C++, Python, Java, JavaScript, Perl, SQL
- *Analysis:* MATLAB, SAS, Stata
- *Publication:* LaTeX, Adobe InDesign, Photoshop, Acrobat
- Read, write and type Chinese and natively fluent in Mandarin
- Eleven-time marathon finisher. Personal best at 2013 New York Marathon with time of 3 hours, 25 minutes