

DANIEL SUO

Curriculum Vitae

Department of Computer Science
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RESEARCH INTERESTS

Real-time systems for problems in robotics and computer vision. Operating systems, distributed systems, co-processors and accelerators.

EDUCATION

- Sep 2015 – Dec 2020 **Princeton University**, *Ph.D. Candidate in Computer Science*.
Princeton, NJ Advised by Professor Kai Li
- Sep 2015 – Sep 2018 **Princeton University**, *A.M. in Computer Science*.
Princeton, NJ Advised by Professor Kai Li
- Sep 2006 – May 2010 **Harvard University**, *A.B. in Computer Science*.
Cambridge, MA Secondary Field in Statistics
- Sep 2003 – Jun 2006 **Lexington High School**, *High School Diploma*.
Lexington, MA USA Mathematics Olympiad (Top 0.02%). Piano performance (3rd nationally)

RESEARCH EXPERIENCE

- Feb 2020 – Present **Google AI**, *Research Intern*.
Princeton, NJ Optimization and control group
- Sep 2015 – Present **Princeton University**, *Ph.D. Candidate*.
Princeton, NJ Department of Computer Science
- **Brain Imaging Analysis Kit (BrainIAK)**
Collaboration among Intel, the Princeton Neuroscience Institute, and Princeton CS to produce highly-optimized software for advanced brain image analysis. Role: develop distributed deadline-driven system for real-time fMRI studies.
 - **2017 Amazon Alexa Challenge (Team Princeton)**
Challenge to develop a conversational social chatbot. Role: develop real-time processing system to handle chatbot responses for thousands of concurrent conversations.
 - **2016 Amazon Picking Challenge (Team MIT, 3rd Place)**
Challenge to demonstrate fully autonomous systems that pick objects from warehouse shelves. Role: develop ROS infrastructure, design and implement 6D pose annotator.
 - **Mobot**
Autonomous robot for mapping indoor environments. Synchronizing high-resolution cameras over wireless networks, offloading compute to GPU-enabled servers, designing and manufacturing mechanical parts. Built [by hand](#). Code [here](#).
- Sep 2018 – Sep 2019 **Intel**, *Research Intern*.
Santa Clara, CA Microarchitecture Research Lab
- Jul 2017 – Oct 2017 **UC Berkeley**, *Visiting Collaborator*.
Berkeley, CA EECS at UC Berkeley, RISELab, Berkeley Artificial Intelligence Research (BAIR) Lab
- **Berkeley Deep Drive**
Collaboration between RISELab and BAIR to develop deep automotive perception on real-time and distributed systems.

PUBLICATIONS

arXiv **Daniel Suo** and Kai Li. Deadlines for streaming machine learning applications. 2018

- OHBM 2018 **Daniel Suo**, Grant Wallace, Mihai Capotă, Benjamin J. Hutchinson, Megan deBettencourt, Anne Mennen, Yida Wang, Ted Willke, Nicholas B. Turk-Browne, Kenneth A. Norman, Jonathan D. Cohen, and Kai Li. Distributed deadline computing for real-time brain imaging analysis. *Organization for Human Brain Mapping*, 2018
- OHBM 2018 Mihai Capotă, **Daniel Suo**, Ted Willke, Kenneth A. Norman, Nicholas B. Turk-Browne, Kai Li, and Jonathan D. Cohen. Enabling large-scale fmri analysis with brainiak. *Organization for Human Brain Mapping*, 2018
- Neuroscience 2017 **Daniel Suo**, Benjamin J. Hutchinson, Megan deBettencourt, Anne Mennen, Yida Wang, Ted Willke, Nicholas B. Turk-Browne, Kenneth A. Norman, Johnathan D. Cohen, and Kai Li. Real-time fMRI analysis in cloud computing environments. *Society for Neuroscience*, 2017
- arXiv* **Daniel Suo**, Michael Suo, and Kai Li. The case for cooperative resource sharing for parallel applications on manycore processors. 2017
- arXiv* Ari Seff, Alex Beatson, **Daniel Suo**, and Han Liu. Continual learning in generative adversarial nets. *arXiv preprint arXiv:1705.08395*, 2017
- ICRA 2017 Andy Zeng, Kuan-Ting Yu, Shuran Song, **Daniel Suo**, Ed Walker Jr., Alberto Rodriguez, and Jianxiong Xiao. Multi-view self-supervised deep learning for 6d pose estimation in the amazon picking challenge. 2016

SOFTWARE

- cuSIFT** GPU-optimized implementation of SIFT with related 2D and 3D image alignment procedures.
- rgbd-annotator** Annotate 6D object poses from RGB-D data.
- libdocker** Official Docker SDK in C.
- Crypto.jl** Julia cryptography library.
- Marvin** Minimalist GPU-only N-dimensional framework for deep convolutional neural networks.

ACADEMIC AWARDS

- Feb 2016 2016 Qualcomm Innovation Fellowship Finalist
- Sep 2015 – May 2020 Gordon Y. S. Wu Fellowship in Engineering

ACADEMIC SERVICE

- 2016 Reviewer, European Conference on Computer Vision
- 2016 Reviewer, IEEE Conference on Computer Vision and Pattern Recognition

TEACHING

Princeton University

- Fall 2016 COS418 Distributed Systems, *Teaching Assistant*, Prof. Mike Freedman
- Spring 2017 COS518 Advanced Computer Systems, *Teaching Assistant*, Prof. Mike Freedman
- 2016 – 2017 Annie Chu '17, *Undergraduate Advisor*, Prof. Kai Li
- 2015 – 2016 Helen Yu '16, *Undergraduate Advisor*, Prof. Jianxiong Xiao
- 2015 – 2016 Pallavi Koppol '16, *Undergraduate Advisor*, Prof. Jianxiong Xiao
- 2015 – 2016 Ed Walker '16, *Undergraduate Advisor*, Prof. Jianxiong Xiao
- Spring 2016 Aarav Chavda '17, *Undergraduate Advisor*, Prof. Jianxiong Xiao

Harvard University

- Spring 2010 CS171 Data Visualization, *Teaching Assistant*, Prof. Hanspeter Pfister
- Spring 2009 CS171 Data Visualization, *Teaching Assistant*, Prof. Hanspeter Pfister

WORK EXPERIENCE

- Mar 2013 – Jul 2015 **Floored, Inc.**, *Head of Product, LIDAR and Computer Vision Research*, New York, NY.

Sep 2012 – Mar 2013 **McKinsey & Company**, *Advanced Industries Practice*, Stamford, CT.

Jul 2010 – Aug 2012 **Goldman Sachs & Co**, *Investment Banking Division*, New York, NY.

REFERENCES

- Princeton University **Kai Li**, *Department of Computer Science*.
Advisor Paul M. Wythes '55, P'86 and Marcia R. Wythes P'86 Professor in Computer Science
- Google AI **Elad Hazan**, *Optimization and control group*.
Supervisor Professor in Computer Science at Princeton University
- Princeton University **Johnathan D. Cohen**, *Princeton Neuroscience Institute*.
Collaborator Robert Bendheim and Lynn Bendheim Thoman Professor in Neuroscience. Professor of Psychology, Co-Director Princeton Neuroscience Institute
- Intel Corporation **Theodore L. Willke**, *Parallel Computing Lab*.
Collaborator Senior Principal Engineer
- Intel Corporation **Chit-Kwan Lin**, *Smart Computing Architecture*.
Supervisor Research Scientist, Team Lead
- Princeton University **Michael J. Freedman**, *Department of Computer Science*.
Supervisor Professor, S* Network Systems (SNS) group
- Harvard University **Hanspeter Pfister**, *John A. Paulson School of Engineering and Applied Science*.
Supervisor An Wang Professor of Computer Science. Director of the Institute for Applied Computational Science