Taisuke YASUDA

Mathematics · Computer Science

Contact : taisukey@andrew.cmu.edu (919)259-9967 taisukeyasuda.github.io taisukeyasuda taisukeyasuda
Residential status : US permanent resident

Education

2015-2019 **MS Mathematics**, Carnegie Mellon University (GPA 3.79/4.00)
2015-2019 **BS Mathematics and Computer Science**, Carnegie Mellon University (GPA 3.79/4.00)

Selected coursework (graduate) : Algorithms for Big Data, Advanced Real Analysis, Probability, A Theorist's Toolkit, Machine Learning
Selected coursework (undergraduate) : Parallel Computer Architecture and Programming, Algorithms, Computer Systems

Experience

Present – Jan 2018 | **Dept. of Computer Science, Carnegie Mellon University (Pittsburgh, PA)**
Undergraduate Researcher in Machine Learning
- Proposed and investigated a new problem in theoretical machine learning with Prof. **David Woodruff**
- Proved theorems towards tightening bounds on the query complexity of kernel problems

Present – Jun 2018 | **Dept. of Mathematics, Carnegie Mellon University (Pittsburgh, PA)**
Undergraduate Researcher in Analysis & Partial Differential Equations
- Researched a problem in phase separation and calculus of variations with Prof. **Giovanni Leoni**
- Proved the asymptotic stability and decay theorems in fluid dynamics with Prof. **Ian Tice**
- Authored a 50 page manuscript, to be submitted

Present – Sep 2016 | **Dept. of Mathematics, Carnegie Mellon University (Pittsburgh, PA)**
Teaching Assistant/Grader
- Held office hours and recitations for Linear Algebra with a focus on applications in CS (Fall '18)
- Graded homeworks for Principles of Real Analysis I (Spring '18) and Putnam Seminar (Fall '16, Fall '17)

Software Projects

Parallel Sketch, 15-418 (Parallel Computation) course project — Spring 2018
github.com/TaisukeYasuda/parallel-sketch/
- Implemented sketching algorithms (e.g. count sketch, leverage score sampling) in C++ and CUDA
- Achieved up to a ∼40× speedup parallelized implementation over a sequential implementation

Website for US Mathematics Competition Association — Summer 2017
github.com/USMCA/database-website/ database.usmath.org
- Full stack development (React/Redux, Node/Mongo) for nationally shared math contest proposals
- Lead development in a team of 3, teaching React and Redux concepts to the front end developer
- Demoed to and used by major US math competitions

Library Management Website for Miami Japanese School — Summer 2016
github.com/TaisukeYasuda/tosho/ miami-tosho.herokuapp.com
- MEAN stack development of a library website managing ∼250 students and ∼4000 books
- Worked in person with librarians on requested features and demoed to school administration

Dendrite Trace, 15-112 (Introduction to Programming) course project — Fall 2015
github.com/TaisukeYasuda/dendrite-trace/
- Designed an algorithm based on reinforcement learning for automatic tracing dendrites in 3D images
- Implemented the algorithm in Python along with tools for manually labeling training data

Skills

Comfortable : Python, JavaScript (ES7, Node), C/C++
Familiar : CUDA, Java, Matlab, R, Mongo
World Languages : English (native), Japanese (native)
Open source contributions : react-materialize

Awards

Apr 2018 Top 250, Putnam Competition
Apr 2017 Top 500, Putnam Competition
Nov 2016 CNBC Computational Neuroscience Fellowship
Feb 2016 Top 3, TartanHacks
Mar 2015 2nd place, Pathfinder Scholarship in Mathematics