

# Taisuke YASUDA

## Mathematics · Computer Science

Contact : @ taisukekey@andrew.cmu.edu (919)259-9967 taisukeyasuda.github.io in 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	<b>Dept. of Computer Science, Carnegie Mellon University (PITTSBURGH, PA)</b> <i>Undergraduate Researcher in Machine Learning</i> <ul style="list-style-type: none"><li>&gt; Proposed and investigated a new problem in theoretical machine learning with Prof. <b>David Woodruff</b></li><li>&gt; Proved theorems towards tightening bounds on the query complexity of kernel problems</li></ul>
Present Jun 2018	<b>Dept. of Mathematics, Carnegie Mellon University (PITTSBURGH, PA)</b> <i>Undergraduate Researcher in Analysis &amp; Partial Differential Equations</i> <ul style="list-style-type: none"><li>&gt; Researched a problem in phase separation and calculus of variations with Prof. <b>Giovanni Leoni</b></li><li>&gt; Proved the asymptotic stability and decay theorems in fluid dynamics with Prof. <b>Ian Tice</b></li><li>&gt; Authored a 50 page manuscript, to be submitted</li></ul>
Present Sep 2016	<b>Dept. of Mathematics, Carnegie Mellon University (PITTSBURGH, PA)</b> <i>Teaching Assistant/Grader</i> <ul style="list-style-type: none"><li>&gt; Held office hours and recitations for Linear Algebra with a focus on applications in CS (Fall '18)</li><li>&gt; Graded homeworks for Principles of Real Analysis I (Spring '18) and Putnam Seminar (Fall '16, Fall '17)</li></ul>

## SOFTWARE PROJECTS

<b>PARALLEL SKETCH, 15-418 (PARALLEL COMPUTATION) COURSE PROJECT</b> github.com/TaisukeYasuda/parallel-sketch/ <ul style="list-style-type: none"><li>&gt; Implemented sketching algorithms (e.g. count sketch, leverage score sampling) in C++ and CUDA</li><li>&gt; Achieved up to a <math>\sim 40\times</math> speedup parallelized implementation over a sequential implementation</li></ul>	SPRING 2018
<b>WEBSITE FOR US MATHEMATICS COMPETITION ASSOCIATION</b> github.com/USMCA/database-website/ database.usmath.org <ul style="list-style-type: none"><li>&gt; Full stack development (React/Redux, Node/Mongo) for nationally shared math contest proposals</li><li>&gt; Lead development in a team of 3, teaching React and Redux concepts to the front end developer</li><li>&gt; Demoed to and used by major US math competitions</li></ul>	SUMMER 2017
<b>LIBRARY MANAGEMENT WEBSITE FOR MIAMI JAPANESE SCHOOL</b> github.com/TaisukeYasuda/tosho/ miami-tosho.herokuapp.com <ul style="list-style-type: none"><li>&gt; MEAN stack development of a library website managing <math>\sim 250</math> students and <math>\sim 4000</math> books</li><li>&gt; Worked in person with librarians on requested features and demoed to school administration</li></ul>	SUMMER 2016
<b>DENDRITE TRACE, 15-112 (INTRODUCTION TO PROGRAMMING) COURSE PROJECT</b> github.com/TaisukeYasuda/dendrite-trace/ <ul style="list-style-type: none"><li>&gt; Designed an algorithm based on reinforcement learning for automatic tracing dendrites in 3D images</li><li>&gt; Implemented the algorithm in Python along with tools for manually labeling training data</li></ul>	FALL 2015

## SKILLS

Comfortable : Python, JavaScript (ES7, Node), C/C++  
Familiar : CUDA, Java, Matlab, R, Mongo  
World Languages : English (native), Japanese (native)

## 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