Tim Baer

SWE | ML & Distributed

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Education

BS | Computer Science & Math

University of Illinois | May 2022
Urbana-Champaign, IL

- CS GPA: 3.83
- Cumulative GPA: 3.71
- Franz Hohn & J.P. Nash Scholarship
- James Scholar

Coursework

Algorithms/Numerics

Parallel Numerical Algorithms*
Tensor Computations
Randomized Algorithms
Approximation Algorithms*
Algorithms
Introduction to Algorithms
Numerical Analysis
Data Structures

Systems

Parallel Programming
System Programming
Computer Architecture

Math

Abstract Linear Algebra (Honors)
Probability & Statistics*
Elementary Real Analysis*
Differential Equations
Fundamental Mathematics (Honors)

Technical Skills

Languages

Advanced
C++
C
Python

Intermediate
Java
Javascript

General

Software
Docker • Kubernetes
MPI • OpenMP • CUDA
Jenkins • SonarQube • Jacoco
Git • LaTeX • Maven

Libraries
Numpy • Scipy • Boost
Tensorflow • Horovod • BytePS
Ray • NCCL • Cyclops

* Fall 2021

Experience

C3.ai | Software Engineering Intern (Machine Learning), Platform

Jun 2021 - Aug 2021 | Redwood City, CA

- Researched open-source distributed deep learning frameworks & designed end-to-end integrations with the platform
- Developed a transpiler for Python code generation to avoid serialization of large arrays across languages, improving performance up to 4000x
- Presented hour-long talks on internship work & undergraduate research
- Selected for a filmed 1:1 intern testimonial interview published to C3.ai's website

Laboratory for Parallel Numerical Algorithms | Research Assistant

Aug 2019 - Current | Urbana-Champaign, IL

- Currently researching parallel/distributed approximate SSSP
- Designed & implemented a parallel/distributed MSF algorithm that outperforms the state of the art
- Developed a communication-efficient multilinear kernel to optimize a common type of graph update
- Presented multiple invited talks with a theme of graph & tensor algorithms

IBM | Software Engineering Intern (Backend), Db2z Tools

Jun 2020 - Dec 2020 | Virtual

- Integrated static/dynamic code analysis into CI pipeline to detect security issues
- Automated API & unit tests to improve code coverage by 85%
- Developed a new internal documentation tool

Software Design Studio | Course Assistant

Aug 2019 - May 2020 | Urbana-Champaign, IL

- Moderated weekly code review sessions focusing on best practices
- Graded & provided constructive feedback on C++/Java assignments
- Interviewed new hire candidates

All Information Services | Technology Intern

May 2019 – Aug 2019 | Oak Brook Terrace, IL

- Automated client workflow for file syncing with Microsoft Graph API
- Developed Flask app to integrate Slack with our service desk platform
- Leveraged NLP to automate classification of support ticket issue types

Selected Projects (Non-Research)

Shopical: Shop Ethical

IBM Intern Hackathon 2020

- Developed mobile app that leverages ML to highlight harmful ingredients in consumer products in real-time
- Won 2nd place in the climate change division (126 teams across 3 divisions)

Evolution in the Stock Market

CS @ ILLINOIS Sail 2019

- Taught a class to 50+ high school students interested in computer science
- Developed a Jupyter notebook to apply genetic algorithms to real-time stock data

Self Driving Car Simulator

Fall 2018

- Implemented a "self-driving" car in GTAV with computer vision
- Integrated a deep learning algorithm to identify pedestrians & vehicles