Billy Zhong

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Education

Yale University — *Computer Science (B.S.) and Mathematics (B.A.)* 2018–2022

CPSC 223 — Data Structures
CPSC 366 — Intensive Algorithms
CPSC 460 — Automata Theory
CPSC 465 — Theory of Distributed Systems
CPSC 468 — Computational Complexity
PHIL 267 — Mathematical Logic
PHIL 427 — Computability and Logic
PHIL 439 — Modal Logic
CPSC 323 — Systems Programming
CPSC 413 — Computer System Security
CPSC 447 — Quantum Computing
CPSC 452 — Deep Learning
CPSC 467 — Cryptography
CPSC 470 — Artificial Intelligence
CPSC 475 — Computer Vision
CPSC 476 — Advanced Computer Vision
MATH 230 — Vector Calculus and Linear Algebra
MATH 244 — Discrete Mathematics
MATH 270 — Set Theory
MATH 305 — Real Analysis
MATH 310 — Complex Analysis
MATH 350 — Abstract Algebra
MATH 354 — Number Theory
ECON 351 — Mathematical Game Theory

Work

Twitter — *Software Engineering Intern* 2021
Designed and implemented a retry pipeline and dead letter queue for failed events using Java and Kafka
Increased revenue recovery and data accuracy and removed dependency on unreliable external services

Yale University (Professor Sun-Joo Shin) — *Research Assistant* 2020–2021
Prepared case studies concerning different forms of heterogenous systems of logic to study and characterize the nature of diagrammatic reasoning

DeepMap — *Computer Vision Intern* 2019
Designed algorithms and benchmarks for lane line feature detection in satellite road images
Achieved 90% correctness, as measured by benchmarks

Zingbox — *Software Intern* 2017
Programmed a test suite for Web user interface using Python and Selenium
Created database query interface for Splunk

Projects

Self-Balancing Text String Trees 2021–2022
Augmented self-balancing binary search trees to maintain packed, linked-list representations of strings
The novel data structure supports the modification of strings and the tracking of characters across modifications with asymptotic runtimes that are logarithmic in the number of string modification operations

Chinese Study Tool 2019
Programmed a computer vision application to recognize Chinese characters within PDF images and annotate them within the PDF with their translations
Explored object localization neural networks in contrast to traditional computer vision techniques

Dynosaur 2016-2018
Researched optimization techniques to teach a bot to play the Google Dinosaur Runner Game and designed an interactive web dashboard to monitor the bot as it learns
Achieved performance 2x better than a human player within several hours of training

Awards

FBLA State Leadership Conference ..... 4th Place, Network Design 2016
USA Computing Olympiad ..... Gold Division 2016
VEX World Championships ..... Judges' Award, Arts Division 2015
HSHacks ..... Top 3, Hardware Hacks 2014

Skills

Python, C/C++, Java, Javascript, OpenCV, LAMP, MEAN, Kafka, Aurora, Git, Bash, Pytorch, Tensorflow, LaTeX