

Nicklaus Choo

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EDUCATION

CARNEGIE MELLON UNIVERSITY, PITTSBURGH, PA, USA

Major Bachelor of Science in Computer Science

· **Concentration** in Theoretical Computer Science - Algorithms and Complexity

Expected Graduation **Dec 2021**

Cumulative GPA **3.60**

Dean's List | Fall 2019, Fall 2020

SELECTED TECHNICAL COURSEWORK

COMPUTER SCIENCE

- 10-701 Introduction to Machine Learning (PhD)
- 15-411 Compiler Design (C++)
- 15-210 Parallel and Sequential Data Structures and Algorithms
- 15-213 Introduction to Computer Systems
- 15-251 Great Ideas in Theoretical Computer Science
- 15-440 Distributed Systems (Spring 2021)
- 15-451 Algorithm Design and Analysis (Spring 2021)

MATHEMATICS

- 21-241 Matrices and Linear Transformations
- 21-259 Calculus in 3D
- 15-259 Probability and Computing
- 15-260 Statistics and Computing
- 21-301 Combinatorics (Spring 2021)

WORK EXPERIENCE

ZODAJ | Full Stack Software Engineer Intern • **USA**

May 2020 - Aug 2020

- Devised SMS and Android COVID-19 contact tracing for Senegal in partnership with Senegalese health authorities
- Designed NoSQL, PostgreSQL databases along with AWS Lambda RESTful API for TCN protocol contact tracing
- Directed and implemented all permissions and roles within ZODAJ for Amazon AWS databases
- Created exposure overlap algorithm for n people in a store that runs in $\max(O(k) \text{ or } O(n \log n))$, where k is overlap count
- Wrote graph algorithms, discrete-time markov chain SIR epidemic modeling for tracking infections

BOSCH ASEAN | Linux Systems Engineer Intern (DevOps) • **Singapore**

May 2019 - Aug 2019

- Enabled Jenkins server to run 2 ISO builds in parallel (1 executor, 2 slaves) for testing via dynamic port allocation
- Identified bottleneck in diagnosing failed builds and wrote Bash scripts to mount QEMU disks on build servers for automatic log extraction, significantly reducing debugging time
- Modified Jenkins pipeline to reduce deployment testing from 20 mins to 1 min
- Began migration of current inventory servers to new OCS inventory servers via Ansible for seamless configuration
- Authored Linux Debian package for unit tests automation (security/functionality) on new OS installations

EYEOTA PTE LTD | Data Analytics Intern • **Singapore**

Dec 2017 – May 2018

- Programmed data cleaning and classification of advertiser and buyer data from programmatic buy-side platforms
- Extracted advertisers' target demographic trends via both web-scraping and buyers' purchasing data
- Streamlined updates of daily, weekly, and monthly audience data sales revenue via complete process automation

SINGAPORE ARMED FORCES | Platoon Sergeant, Transport Formation • **Singapore**

Jan 2016 – Nov 2017

- Initiated the automation of the human resource and daily vehicle accounting (available, under repairs, loaned out, on missions) of over 20 vehicle types and 400 individual units. This improved count time from 45 mins to 5 mins

A*STAR SIMTECH RESEARCH | Machine Learning Research Intern • **Singapore**

Jun 2014 – Dec 2014

- Selected as 6 of 1,140 students in my high school, Hwa Chong Institution, for a machine learning research internship
- Utilized k-means clustering, partial least squares regression, extreme learning machine, and multiple linear regression to predict ink cartridge lifespans with industry standard of > 97% accuracy, thus eliminating destructive batch-testing

TECHNICAL SKILLS

PROGRAMMING LANGUAGES | C | C++ | Bash | Python | Java | Kotlin | SML | HTML | CSS | JavaScript

TOOLS

- Ansible - server configuration, OS startup configuration
- AWS - Lambda, EC2, S3, RDS, DynamoDB, IAM, Neptune
- Docker - containerized OS build testing, app testing
- Jenkins - continuous feature/pipeline testing and deployment
- Terraform - TCN protocol backend configuration/deployment

FRAMEWORKS

- Front-end - .ISO download UI, log reporting, Android
- Back-end - build pipeline optimization, DB integration
- Agile - tri-weekly Sprint, daily SCRUM

INDIVIDUAL PROJECTS

SHEET MUSIC ASSISTANT

- Created Python application built in TkInter utilizing optical and audio recognition to read sheet music PDFs, playback, display and automatically flip pages for musicians during live performance.

EXTRA-CURRICULARS

- Course Tutor (Spring 2020) 15-251 Great Ideas in Theoretical Computer Science