

# Nicklaus Choo

JUNIOR · CARNEGIE MELLON UNIVERSITY

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## Education

### Carnegie Mellon University

Pittsburgh, PA, USA

B.S. IN COMPUTER SCIENCE, CONCENTRATION IN ALGORITHMS & COMPLEXITY

Aug 2018 - Expected Dec 2021

- Cumulative GPA **3.60**, School of Computer Science Dean's List, High Honors F19, F20.

- Selected courses:

**10-701** Machine Learning (PhD)

**15-210** Parallel Data Structures & Algos

**15-260** Statistics and Computing

**15-411** Compiler Design (C++)

**15-213** Introduction to Computer Systems

**21-241** Matrices and Linear Transformations

**15-440** Distributed Systems (Java) *(Current)*

**15-251** Great Ideas in Theoretical CS

**21-259** Calculus in 3D

**15-451** Algorithm Design & Analysis *(Current)*

**15-259** Probability and Computing

**21-301** Combinatorics *(Current)*

## Work Experience

### ZODAJ FULL STACK SOFTWARE ENGINEER INTERN *Pittsburgh, PA, 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 Proficiencies

### Tools & Frameworks

- C | C++ | Bash | Python | Java | Kotlin | SML | HTML | CSS | JavaScript

**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

**Front-end** .ISO download UI, log reporting, Android

**Back-end** build pipeline optimization, DB integration

**Agile** tri-weekly Sprint, daily SCRUM

## Extracurriculars & Projects

### 15-251 Great Ideas in Theoretical CS Course Tutor

- Conducted one-on-one tutoring sessions for students in the class.

### 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.