Jonathan **Tong**

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Education

Cornell University *Ithaca, New York*
B.S. IN COMPUTER SCIENCE, MINOR IN INFORMATION SCIENCE *Expected May 2021*

- Cumulative GPA: **3.77**
- **Relevant Coursework:** Object-Oriented Programming, Linear Algebra, Discrete Structures, Functional Programming, Algorithm Analysis, Systems Programming, Probability & Statistics, Machine Learning, Natural Language Processing, Databases, Data-Driven Web Applications, Operating Systems, Software Engineering

Relevant Experience

Microsoft (Azure Networking) *Remote Internship*
SOFTWARE ENGINEERING INTERN *June 2020 – August 2020*

- **Pioneered a circuit breaking feature** limiting network traffic between services for Open Service Mesh (OSM), an open source project
- Designed a custom resource definition (CRD) in **Kubernetes** to configure circuit breaking fields, i.e. max connections & max requests
- Listened for changes in the CRD using **Golang** and configured **Envoy proxy** using xDS to apply the changes in real time
- Added support and configuration for concurrent HTTP requests and rate of requests in OSM demo to demonstrate circuit breaking
- Contributed the project as an experimental extension of **Service Mesh Interface (SMI)** to the Cloud Native Computing Foundation and the broader open source community

Oracle (Cloud Infrastructure) *Seattle, WA*
SOFTWARE ENGINEERING INTERN *May 2019 – August 2019*

- Created CLI tools using Java and Python to simulate placing volumes in production regions, output statistics, and graph results
- Identified issues with and proposed several changes to the volume placement algorithm and used the new CLI simulation tools to measure the amount of improvement
- **Increased the number of 32 TiB volumes placed by 115%** by improving the selection of host servers for volume placement

Clemson University *Clemson, SC*
RESEARCH INTERN *June 2015 – August 2016*

- Developed a novel **pronunciation based convolutional neural network** to detect cyberbullying in text messages under computer science professor Feng Luo, where we published 2 research papers based on our work
- Proposed a novel idea to convert the text to a phonetic encoding, reducing noise from internet slang and misspelled words and significantly **increasing precision, recall, and accuracy by up to 8.6%, 8.9%, and 6.3%**, respectively

Publications

X. Zhang, **J. Tong**, N. Vishwamitra, E. Whittaker, J. P. Mazer, R. Kowalski, H. Hu, F. Luo, J. Macbeth, and E. Dillon, "Cyberbullying Detection with a Pronunciation Based Convolutional Neural Network," in *15th IEEE International Conference on Machine Learning and Applications (ICMLA)*, 2016, pp. 740–745.

N. Vishwamitra, X. Zhang, **J. Tong**, H. Hu, F. Luo, R. Kowalski, and J. Mazer, "MCDefender: Toward Effective Cyberbullying Defense in Mobile Online Social Networks," in *Proceedings of the 3rd ACM on International Workshop on Security And Privacy Analytics*. 2017, pp. 37–42.

Projects

LaTeX Gloves — *latexgloves.io* *July 2018 – PRESENT*

- Created a full stack web app that converts & formats pictures of handwritten notes into LaTeX documents and emails the result
- Utilized Flask and Redis Queue to implement the backend and employed Google's Cloud Vision API for the handwriting recognition

Social Enterprise at Cornell — *socialenterpriseatcornell.com* *August 2018 – PRESENT*

- Worked as a founding member on the executive board to plan student-faculty lunches, guest speaker series, and recruitment events
- Developed a website for the student organization using Bootstrap and SASS

Skills & Interests

Skills Java (5 yrs), Python (3 yrs), front-end web development (5 yrs), Linux (3 yrs), C (2 yrs), Go (1 yr), OCaml (1 yr)
Interests Rubik's Cubes (personal best: 15.17 sec), Clarinet, Magic & Card Tricks , Arch Linux, Delta Tau Delta Fraternity