Jing Wei Nicholas, Lim

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Education

Brown University, Bachelor of Science, Computer Science – GPA: 4.0/4.0 *Expected Graduation: May 2022*

Work Experience

Roblox, Software Engineering Intern, *San Mateo, CA* *May 2021 – Aug 2021*

- Built robust back-end service in Golang to receive 1000 requests/sec about Captcha challenges across tens of millions of users
- Designed technical specification by gathering requirements from various stakeholders and liaising with external vendors
- Enhanced security by actively designing against malicious users, keeping secrets in Vault and enforcing HMAC authentication
- Used Nomad to easily deploy and manage containers in development and production servers at scale
- Tested service by writing comprehensive unit tests and integration tests, and automated software build and testing using Drone CI

GovTech, Software Engineering Intern, *Singapore* *Jun 2020 – Aug 2020*

- Improved object detection performance on personal mobility devices by 20% compared to government-deployed YOLOv3 model
- Automated data extraction and annotation to reduce time needed by 90% by building a data preparation pipeline
- Expanded feasible hyperparameter search space of DeepSORT by >20 times through Bayesian optimization
- Built Nvidia-based Docker images to operate pipelines on AWS and Kubeflow, utilizing cloud GPU to expand engine to field use
- Overhauled monolithic legacy code into an end-to-end modular multiprocessing pipeline to be deployed at government agencies

InterSystems Corporation, Software Engineering Intern, *Cambridge, MA* *May 2019 – Aug 2019*

- Engineered DataQuality framework to efficiently identify malformed data in a relational database with millions of health records
- Designed and built front-end for DataQuality framework, optimizing for client use and performance
- Reduced development time of DataQuality framework by 85% through automation, greatly reducing development costs
- Investigated feasibility of integrating DeepSee REST API with third-party data visualization tools such as PowerBI and Tableau
- Used Perforce as a version control system to integrate with current code base in conjunction with JIRA and SCRUM

Intelligent Robot Lab @ Brown, Researcher, *Providence, RI* *Sep 2019 – Present*

- Publication: *Skill Discovery for Exploration and Planning using Deep Skill Graphs*, ICML 2020 LifelongML
- Engaged in reinforcement learning research using Deep Skill Graphs to reduce large continuous MDPs into small discrete MDPs
- Researched methods like Local Graph Partitioning to aid agent exploration in complex environments, eg. Montezuma's Revenge

Institute of Infocomm Research, Researcher, *Singapore* *Mar 2014 – Mar 2017*

- Publication: *A Brain-Computer Interface (BCI) to Detect Responses to Affective Audiovisual Stimuli from EEG*, IRC-SET 2017
- Developed a BCI to control a LEGO robot wheelchair using electroencephalogram (EEG) and motor imagery
- Architected a BCI to detect responses to affective audiovisual stimuli from EEG to aid patients suffering from alexithymia
- Implemented front-end C# GUI program to run experiments and collect EEG for analysis from 29 participants
- Analyzed experiment data using MATLAB to perform k-fold cross validation and calculate statistical significance of results

Projects

GrindTime – Chrome extension for easy and convenient management of applications Chrome API JavaScript HTML/CSS

- Built an extension that saves job applications and autofills them with a single click, eliminating the need to fill repetitive fields
- Designed and implemented both front-end and back-end, awarded Wolfram Award as one of the top projects at Hack@Brown

PuddleStore – distributed file system Go

- Implemented Tapestry as the underlying distributed object location and retrieval system (DOLR)
- Developed file hierarchy using Zookeeper and Docker, or previously implemented Raft, as a distributed coordination service

Weenix – full-fledged mini Unix operating system (OS) C

- Constructed OS with procs (processes, threads, mutexes), device drivers (terminals, disks, memory devices) and S5FS file system
- Implemented virtual memory maps, page fault handler and system calls to manage user address spaces and run user-level code

RemoteExplorer – a VR-Robotics system for remote exploration Unity ROS C++ C# Python

- Designed a VR, Unity and ROS system where a remote environment is mapped and reconstructed as a Unity VR environment
- Utilized sensor data from the Kinova Movo or Gazebo simulation to perform SLAM for mapping the remote environment

Technical Skills

Languages: Python, Go, C, C#, C++, Java, SQL, HTML/CSS/JavaScript, OCaml, MATLAB
Technologies/Frameworks: React, Node, Flask, Docker, Amazon Web Services (AWS), Kubeflow, ROS, PyTorch, TensorFlow

Leadership Experience and Campus Involvement

President, Secretary of Brown University Merlions *Mar 2019 – Present*
President, Co-Founder of Brown AI Robotics Ethics Society *Mar 2020 – Present*
Assistant Tournament Director of Brown Debating Union *Sep 2018 – Sep 2019*
Swearer Classroom Tutoring Program, William D'Abate Elementary School *Oct 2018 – Present*