

Jing Wei Nicholas, Lim

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Education

Brown University, Bachelor of Science, Computer Science & Philosophy – GPA: 4.0/4.0

Expected Graduation: May 2022

Work Experience

SAP Labs, Software Engineering Intern, Palo Alto, CA

Sep 2021 – Mar 2022

- Led design and implementation of decentralized finance (DeFi) app facilitating automatic payments on Ethereum smart contracts
- Built back-end API servers in Node.js with Metamask signature authentication as convenient interfaces with smart contracts
- Designed front-end websites in React that pull and aggregate data from smart contract event logs with automatic synchronization
- Integrated DeFi app with SAP's Self-Sovereign Identity (SSI) project, an existing solution for secure digital identities
- Led SSI development and on-boarded new software engineers as all original software engineers on the SSI team off-boarded

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 tech spec from scratch 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 manage 100s of containers in production servers, and automated software build and testing using Drone
- Reduced maintenance efforts by 80% by using Kibana, Prometheus and Grafana to log and visualize metrics on service health
- Engineered ETL pipeline using Airflow DAGs to process millions of data points ingested by back-end service for data analysis

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 an ETL 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

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

Projects

PuddleStore – distributed file system

- 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)

- 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 – VR-Robotics system for remote exploration

- 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, Solidity

Technologies/Frameworks: React, Node, Web3, Docker, Amazon Web Services (AWS), Kubeflow, ROS, PyTorch, TensorFlow

Leadership Experience and Campus Involvement

President, Secretary of Brown University Merlions

Mar 2019 – Jun 2021

President, Co-Founder of Brown AI Robotics Ethics Society

Mar 2020 – May 2021

Assistant Tournament Director of Brown Debating Union

Sep 2018 – Sep 2019