Jing Wei Nicholas, Lim

jwnicholas99@gmail.com | https://jwnicholas99.github.io

Education

Brown University, Bachelor of Science (Honors), Computer Science (AI/ML, Systems) & Philosophy – GPA: 4.0/4.0 *May 2022*

Work Experience

Open Government Products, Software Engineer, *Singapore* *Feb 2024 – Now*

- Built and launched Postman, Singapore's whole-of-government secure messaging platform that unifies all government SMS messages under one "gov.sg" sender ID; delivered 200M+ messages since launch
- Spearheaded strategic performance optimizations saving $100k+/month - rearchitected bulk processing (reduced processing time by 87.5%) and message sending (increased per-worker sending throughput by ~5x) subsystems
- Established comprehensive observability framework across Postman and critical external services for rapid incident handling
- Led cross-functional team to support national SMS campaigns, ensuring reliable delivery at scale

Intelligent Robot Lab @ Brown, Artificial Intelligence Researcher, *Providence, RI* *Sep 2019 – May 2022*

- Publication: *Skill Discovery for Exploration and Planning using Deep Skill Graphs*, ICML 2020 LifelongML
- Advanced 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

SAP Labs, Software Engineering Intern, *Palo Alto, CA* *Sep 2021 – Mar 2022*

- Led E2E design and implementation of decentralized finance (DeFi) app facilitating payments via 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) platform, expanding secure digital identity capabilities
- Took technical leadership of SSI development during team transition, onboarding and leading 4 new engineers

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

- Built robust back-end service in Golang to process 1k+ requests/sec about Captcha challenges across tens of millions of users
- Designed comprehensive tech spec from requirements gathering with multiple stakeholders and external vendor coordination
- Enhanced service security through proactive threat modeling, Vault secret management and enforcing HMAC authentication
- Automated infrastructure management using Nomad for 100+ production containers, and Drone CI/CD for seamless deployment
- Reduced operational maintenance by 80% using Kibana, Prometheus and Grafana to log and visualize service health metrics
- Built scalable ETL pipeline using Airfow DAGs processing millions of data points for business intelligence and fraud detection

GovTech, Artificial Intelligence Engineering Intern, *Singapore* *Jun 2020 – Aug 2020*

- Improved object detection performance by 20% on personal mobility devices 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 >20x through Bayesian optimization
- Architected cloud-native AI pipelines using Nvidia Docker images on AWS and Kubeflow, expanding 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 across millions of health records in enterprise databases
- Reduced development time of DataQuality framework by 85% through automation, greatly reducing development costs

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 an AI-powered BCI to control a robot wheelchair using electroencephalogram (EEG) and motor imagery
- Architected an AI-powered BCI to detect responses to affective audiovisual stimuli using EEG to aid alexithymia patients

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

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: JavaScript, Python, Go, C, C#, C++, Java, SQL, OCaml, Solidity

Technologies/Frameworks: React, NodeJS, NestJS, Docker, Amazon Web Services (AWS), 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*