Jet New

Portfolio: jetnew.io
Github: github.com/jetnew

Email: notesjet@gmail.com
H1B1 Visa Eligible (FTA-reserved Quota) / HPI Visa Eligible

Education

- **National University of Singapore (NUS)** — Singapore
  Bachelor of Computing - Computer Science; Expected GPA: 4.50/5 — *Aug 2019 - Apr 2023*
  Special Programmes: *Turing Research Programme, University Scholars Programme (Honour Roll)*
  Relevant Coursework: *Machine Learning (**Top Student, Best Project**), Computer Vision (**Best Project**), AI Planning & Decision Making (**Best Project**), Natural Language Processing, Data Structures & Algorithms, Software Engineering, Research Methodology*

Work Experience

- **Indeed - Match Recommendation Platform** — Singapore
  Data Scientist Intern — *May 2022 - Jul 2022*
  - **Feature Experimentation**: Improved Indeed's core recommendation system to match jobseekers and employers, by experimenting on a new "no. of hires needed" feature, improving job outcomes for >300M jobseekers.
  - **Data Engineering**: Added new features of >300M jobseekers of >100 days to training database, backfilling historical data over aggregated windows using Spark's `reduce()`. Orchestrated data dumping to AWS servers job using Airflow.
  - **Feature Analysis**: Performed EDA and feature engineering on new features. Trained and evaluated 4 new models against original models using internal ML platform, showing improved AUROC and justifying a full A/B experiment.
  - **A/B Experimentation**: Performed power analysis to determine required traffic size and ran A/B experiments using Proctor with orthogonal design to account for interaction effects. Deployed improved models to production.
- **NUS - Collaborative, Learning, and Adaptive Robots Lab** — Singapore
  Student AI Researcher — *Nov 2020 - Apr 2023*
  - **Transformer Models**: Improved generalization of world models during distribution shift in the multi-agent context, by exploiting permutation invariance of transformers, exceeding performance of state-of-the-art Trajectory Transformer.
  - **Representation Learning**: Improved robustness of reinforcement learning to noise in visual observations, by learning decorrelated latent variables using Barlow Twins, exceeding performance of state-of-the-art algorithm Dreamer.
  - **Survey Paper**: Reviewed representation learning for model-based reinforcement learning, challenges and directions.
- **Grab - Marketplace** — Singapore
  Machine Learning Engineer Intern — *May 2020 - Jul 2020*
  - **Probabilistic Models**: Built a probabilistic modelling framework used by Grab's core dynamic pricing algorithm, implementing 5 models using Tensorflow Probability (Gaussian mixture density network, Bayesian neural network, etc)
  - **Utility Tools**: Built tools for evaluation on industry datasets (KL & JS divergence), visualization of model probability densities (3D and violin plots), and hyperparameter tuning using Ax Bayesian optimization framework.
  - **Internship Sharing**: Presented to the data science community at Google Developer Space Singapore.
- **IMDA - Digital Services Lab** — Singapore
  Executive (Machine Learning) — *Nov 2018 - Jun 2019*
  - **Anomaly Detection**: Designed an anomaly detection algorithm, achieving 0.92 F1 score and deployed as client's main solution, securing a $500K project deal, after evaluating >10 algorithms (e.g. LSTM, Holt-Winters, SARIMA).
  - **Natural Language Processing**: (Confidential) Built hierarchical attention network with GloVe vectors using Keras and Spacy, scraped 40K webpages using Selenium, and delivered insights to Director of Tech & Infra Group.

Research Projects

- **Structured Multi-Agent World Models**: Researched graph neural networks for multi-agent reinforcement learning, improving performance and planning accuracy. Awarded CS4246 Class Project Competition Winner out of 142 students.
- **Barlow Twins for Model-Based Reinforcement Learning**: Researched Barlow Twins and contrastive self-supervised learning for model-based reinforcement learning, improving robustness and training stability.
- **Bayesian Multi-Agent Reinforcement Learning**: Researched flipout for competitive multi-agent reinforcement learning, improving performance, training stability and generalization. Awarded 1st Place at NUS Project Showcase out of 78 teams.
- **NLP Question Answering Transfer Learning**: Researched transfer learning of NLP question answering (QA) capabilities, benchmarking 6 BERT-based models over 14 QA datasets on zero-shot and fine-tuned performance.

Other Achievements

- **Best AI Hack**: out of 130 participants at NTU iNTUition Hackathon - 2019
- **1st Runner Up**: at Optigram Data Visualization Competition - 2021
- **Top 10 Finalist**: out of 54 teams at HackAsia Global Hackathon - 2020
- **Honorable Mention**: project in CS4248 Natural Language Processing - 2022

Skills

- **Programming Languages**: Python, Java, SQL, C++
- **Data Science/Machine Learning**: Jax, PyTorch, TensorFlow, Apache (Spark, Hive, Airflow), Numpy, Pandas, Matplotlib
- **Software Engineering**: Docker, Git, AWS (S3, Athena, Presto, Glue), Jenkins, Linux, GCP

Activities

- **President at NUS Statistics and Data Science Society** — Singapore
  Led 40 students to organize data science workshops and an annual competition with 850 participants. — *2019 - 2022*
- **Technology Associate (Data Analytics) at Google Developer Student Club** — Singapore
  Organized 5 data science workshops at Google Developer Space Singapore, reaching 120 students. — *2019 - 2020*