

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 (**Hon. Mention Project**), Data Structures & Algorithms, 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

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