CHEN XIHAO

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EDUCATION

National University of Singapore Aug 2019 – Jun 2023
Bachelor of Computing (Hon.) in Computer Science, focus area on Artificial Intelligence and Database Systems. Minor in Statistics.
CAP (GPA): 4.69 / 5.00. Graduated with Honours of the Highest Distinction.
Recipient of Dean's List Honours Roll AY2021/22 Semester 2.
Recipient of Certificate of Distinction in Artificial Intelligence Focus Area.

Hwa Chong Institution (College) Feb 2017 - Nov 2018
Singapore-Cambridge GCE Advanced Level
Recipient of the Outstanding Student Award, 2018

TECHNICAL SKILLS

Programming Languages: Python, Java, JavaScript, C, Dart, SQL, Markdown
Libraries, Frameworks & Tools: Hadoop, Spark, Scikit-Learn, Torch, TensorFlow, Keras, NLTK, Gensim NEAT-Python, NodeJS, React, ReactNative, Flutter, TailwindCSS, Postman

EXPERIENCE

Machine Learning Research Intern Feb 2022 – Dec 2022
PayPal Pte. Ltd, Singapore

- Planned and executed a research project on zero and few-shot learning for image classifications of unseen labels.
- Main inventor of a machine learning pipeline that is easily retrained and fitted on newly emerged and unseen classes in CV and NLP. System demonstrates extreme sample efficiency as compared to traditional deep learning, reducing training sample size to 10-100 data points per new class, allowing for fast prototyping (patent pending).
- Integrated an entity extraction pipeline to the eKYC document identification service.

Software Engineer Intern Feb 2021 – Aug 2021
Cialfo Pte. Ltd., Singapore

- Focused on front-end software development for college application workflow.
- Planned, researched, and developed more than 30 major and minor features for Cialfo Explore (for 1600+ high schools, 1000+ universities and 4000+ university representatives) and the administrative panel (for 50+ internal staff).
- Proposed and spearheaded UI improvements for more intuitive human-computer interactions, and overall application flow and product structure.
- Designed and improved on the efficiency of client-server communications by ~5%.
- Strategized and developed end-to-end testing procedures with the QA team.

Undergraduate Teaching Assistant Aug 2020 – Nov 2020
Dept. of Computer Science, National University of Singapore

- Modules taught: *CS1101S Programming Methodology*.
- Accredited with overall performance rating of 4.9 / 5.0.
- Tutored a group of 8 students the foundations of computational thinking using Source (an NUS adaptation of JavaScript).
- Prepared weekly coursework materials and graded assignments (around 50 assignments per student in total).

PROJECTS AND RESEARCH

Dissertation, Final Year Project Aug 2022 – Present
Dept. of Computer Science, National University of Singapore

- Title: *Multi-Modal Entity Resolution.*
- Mentored by Prof. Tan Kian-Lee, Director, Singapore Data Science Consortium.
- Explore and experiment with existing cross-modal entity resolution solutions between image and text using state of the art deep learning methods.
- To research and propose a novel representation learning pipeline for MMER.

Undergraduate Research Project Aug 2021 – Apr 2022
Dept. of Computer Science, National University of Singapore

- Title: *Adaptive Experimental Design with Bayesian Optimisation.*
- Mentored by Assoc. Prof. Bryan Low Kian Hsiang, Director of Research, AI Singapore.
- Explored and experimented with risk-sensitive reinforcement learning (RS-RL).
- Proposed and implemented a new algorithm to perform Bayesian optimisation for RS-RL, showing its empirical performance and sample efficiency.

Natural Language Processing Research Project Feb 2021 – Apr 2022
Dept. of Computer Science, National University of Singapore

- Title: *Attention-based Graph Neural Networks for Multi-class Fake News Classification*
- Proposed a novel neural network model to incorporate attention mechanisms into LSTM and GCN based embedding layers.
- Improved 4-way classification performance by 2% on the LUN dataset (to 98.7%)
- Showed empirically its ability to generalised to out-of-domain datasets.

Big Data Systems and Machine Learning Project Feb 2021 – Apr 2022
Dept. of Computer Science, National University of Singapore

- Led a team of 6 to develop a data pipeline for streaming and analysing book reviews.
- Create a data lake of 100GB in size with support for the 4Vs of big data.
- In charge of performing unsupervised learning and NLP to extract insights from book reviews.

Research Project Feb 2021 – Apr 2021
Dept. of Computer Science, National University of Singapore

- Project title: *Transfer Learning of Convolutional Neural Network Models for Tourist Photograph Recognition.*
- Experimented with 5 different Convolutional Neural Network (CNN) models (e.g., Xception, InceptionV3) for landmark recognition from tourist photographs.
- Spearheaded and demonstrated the use of transfer-learning in identifying country-specific landmarks by adapting from generic image classifiers.
- Compared and contrasted the ease of transfer-learning between popular CNNs.
- Automated repeated supervised learning processes.
- Identified points of failure to reduce overfitting, increasing prediction accuracy by 30%.
- Proposed future research to reduce margin of error, identified potential in other fields.

LEADERSHIP

Vice-Captain and Student Coach, NUS Varsity Fencing Team Feb 2020 – June 2021

- Led the team (~50 fencers) in local and international competitions.
- Hosted international level invitational competitions.
- Coached new fencers and provided constant feedback to experienced ones