MICHAEL CHEN

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EDUCATION

UC San Diego   Singapore
Major in Data Science   Aug 2025 - Present

Raffles Institution   Singapore
A prestigious high school with an A-Level curriculum   Jan 2017 - Dec 2022

SKILLS

Artificial Intelligence:	Natural Language Processing (NLP), Transformers, PyTorch, Neurosymbolic AI
Statistical Analysis:	Causal inference, econometrics, data analytics & visualization
Software Development:	Python, Javascript, AWS, Git, React

PUBLICATIONS

M. K. Chen, X. Zhang, J. Huang, and D. Tao. Improving large language models with concept-aware fine-tuning *Under review*

M. K. Chen, X. Zhang and D. Tao. JustLogic: A Comprehensive Benchmark for Evaluating Deductive Reasoning in Large Language Models *Under review*

M. K. Chen. A Comparative Study of Neurosymbolic AI Approaches to Interpretable Logical Reasoning. *19th Conference on Neurosymbolic Learning and Reasoning (NeSy 2025)*

H. Yao, J. Huang, Y. Qiu, **M. K. Chen**...*(7 others)*... D. Tao. MMReason: An Open-Ended Multi-Modal Multi-Step Reasoning Benchmark for MLLMs Toward AGI. *International Conference on Computer Vision (ICCV 2025)*

M. K. Chen, S. Zhao, C. Borcea and Y. Chen. A Field Study on the Impact of The Counter Ad-Blocking Wall Strategy on User Engagement. *Under review at Decision Support Systems*

S. Zhao, **M. K. Chen**, C. Borcea, Y. Chen. Personalized Dynamic Counter Ad-Blocking Using Deep Learning. *IEEE Transactions on Knowledge and Data Engineering 35.8 (2022): 8358-8371.*

RESEARCH EXPERIENCE

Stanford University   https://cs.stanford.edu/~ermon/website
ML Research Intern   Aug 2024 - Present

- Collaborating with Dr. Felix Petersen from Ermon Group with a focus on developing small yet powerful neural networks for edge computing
- Conducted experiments to improve neural networks based on differentiable logic gates. Explored various formulations of real-valued logics and their effectiveness in neural networks.
- Currently working on creating a modified Adam optimizer that is specifically tailored toward neural networks using real-valued logic

Nanyang Technological University   https://www.ntu.edu.sg/
ML Research Intern   Aug 2024 - Present

- Collaborating with Prof. Tao Dacheng's research group with a focus on LLM research
- First author of a paper on accurately measuring the deductive reasoning capabilities of LLMs. Developed a synthetic dataset with greater linguistic diversity and reasoning complexity than existing datasets. Under review at ICML.
- Currently working on (i) LLM fine-tuning for multi-token prediction and (ii) continual pre-training in LLMs.

New Jersey Institute of Technology (NJIT)   https://www.njit.edu
Business Data Science Research Intern   Nov 2020 - Dec 2023

- Supervised by Prof. Christian Borcea and Prof. Yi Chen, and supported by Forbes Media.
- Applied causal inference (DID) on a massive online experiment with Forbes. Journal paper currently under review.
- Helped implement a novel deep learning model as a counter ad-blocking strategy for publishers. Published at IEEE TKDE.

Data Science Experience

AI Singapore (National Research Institute)   <https://aisingapore.org>
Machine Learning Engineer Intern   Jun 2020 - Jan 2021

- Implemented Monte Carlo simulations on historical transaction data of restaurants to predict how potential changes to food menu would affect revenue
- Built MenuCarlo, a web app for visualizing restaurants' historical transactions and recommending menu optimizations to enable revenue growth, using React and Django
- Implemented at 3 restaurants, with the support of Temasek Polytechnic

Psion Insights (Enterprise AI Startup)
Data Science Intern   Jul 2020 - Jan 2021

- Built classification model with deep learning to categorize existing risks into relevant types, thus saving the time of risk managers by automating their workflow
- Implemented fuzzy matching algorithm to recommend solutions for newly-added company risks, allowing risk management teams to make more accurate decisions
- Demoed to various executives at Fortune 500 companies in risk management teams

Entrepreneurship & Leadership Experience

RoadMaple   <https://roadmaple.com>
Co-Founder & Chief Product Officer   Sept 2021 - Dec 2022

- An online platform that provides roadmaps, resources and mentorship for youths to learn tech skills
- Gained 2.6k users and 30+ partnering organizations & experts in 6 months
- Awarded a government grant of $20,000 USD from the National Youth Council

EchoClass   <https://www.echoclass.com>
Founder   May 2021 - Dec 2023

- Built an open-source learning management system (LMS) tailored for quick setup and better student engagement through gamification
- Used by 5+ coding instructors & 100+ students. Led a team of 4 developers
- Received $5400 USD in corporate sponsorship from Tinkertanker, a prominent code education company in Singapore

Certifications

Mathematics for Machine Learning   Imperial College London
Linear algebra, multivariate calculus, and PCA   Apr 2023

Neuro-Symbolic AI Essentials   IBM Research
Learned to create, infer, and interpret Logical Neural Network (LNN) models   Feb 2023

AWS Certified Cloud Practitioner   Amazon Web Services
Foundational knowledge of AWS cloud services and cloud computing   July 2024

Certified Associate in Project Management (CAPM)   Project Management Institute
Project management fundamentals, predictive methodologies, agile principles, business analysis   July 2024

Military Service

Singapore Armed Forces: Medical Response Force
Combat Medic   Jan 2023 - Nov 2024

- An elite medical force trained to support Singapore's special forces and the general public, including in Chemical, Biological, Radiological, and Explosive (CBRE) environments
- Trained as an Emergency Medical Technician (EMT), capable of providing medical care in an ambulance setting.
- Achieved 2 awards: (1) Outstanding Trainee Award, (2) Best Shot Award
- Volunteered to build and maintain the unit's Telegram bot for tracking our soldiers' training programme, which helped reduce administrative load on commanders