

Zhu Yufan

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<https://yufannnn.github.io/>



EDUCATION

Aug 2025 – May 2029	• National University of Singapore Ph.D. in Computer Science, Research Focus: LLM System Security and Privacy-Preserving Machine Learning.
Aug 2021 – May 2025	• National University of Singapore B.Comp in Computer Science, with Second Major in Statistics (Highest Distinction) GPA: 4.6 / 5.0, Focus Areas: Artificial Intelligence & Databases
Feb 2019 – Dec 2020	• Eunoia Junior College A Level result: AAAA/A

SCHOLARSHIP AND AWARDS

2025-2029	• NUS Research Scholarship Recipient
2021-2025	• NUS Science and Technology Merit Scholarship Recipient
2016-2020	• MOE School-based Scholarship (SM1 Scholarship) Recipient

RESEARCH PUBLICATIONS

2026	• FESC: Remodeling Long-Context Private Inference with Encrypted State-Space Models Yufan Zhu, Chao Jin, Khin Mi Mi Aung, Xiaokui Xiao. <i>Manuscript submitted to the Network and Distributed System Security Symposium (NDSS) 2027.</i> • EncFormer: Secure and Efficient Transformer Inference over Encrypted Data Yufan Zhu, Chao Jin, Khin Mi Mi Aung, Xiaokui Xiao. <i>Accepted to IEEE Transactions on Dependable and Secure Computing (TDSC).</i>
2024	• A Personalized Learning Tool for Physics Undergraduate Students Built On a Large Language Model for Symbolic Regression Yufan Zhu, Zi-Yu Khoo, Jonathan Sze Choong Low, Stéphane Bressan. <i>In Proceedings of the 2024 IEEE Conference on Artificial Intelligence.</i>

PROFESSIONAL SERVICE

2026	• Reviewer, ACM International Conference on Information and Knowledge Management (CIKM 2026) • Reviewer, IEEE Transactions on Information Forensics and Security (TIFS 2026)
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RESEARCH EXPERIENCE

Aug 2024 - Present	• Graduate Research Assistant, National University of Singapore & A*STAR Developing Fully Homomorphic Encryption (FHE) methods for privacy-preserving LLM inference on the Mamba architecture with Professor Xiao Xiaokui and Dr. Jin Chao, leading to a paper accepted at IEEE TDSC.
July 2024 - Jan 2025	• Research Assistant, Nanyang Technological University & Centre for Quantum Technologies & A*STAR Co-developed an autonomous quantum agent using variational quantum algorithms for memory-efficient data stream classification with Professor Gu Mile and Dr. Jayne Thompson, outperforming classical RNN baselines.
May 2024 - Aug 2024	• Research Assistant (Odyssey), National University of Singapore Built a theory-driven AIGC framework for visual marketing with PhD candidate Bruce Yang under Professors Li Xiaofan and Qiao Dandan, re-evaluating AIGC’s creativity and effectiveness against PGC.

EMPLOYMENT HISTORY

May 2024 - August 2024	• Machine Learning Research Engineer Intern, A*STAR • Conducted model training, and compatibility validation processes for deploying machine learning models on encrypted data. Developed robust testing frameworks for software and API layers. Strengths: software testing, API validation, machine learning model optimization, and advanced data security measures.
May 2023 - August 2023	• Generative Artificial Intelligence Engineer Intern, KiWi Augmented Retail Technology • Led a team of three engineers to design and implement an automated pipeline for poster generation utilizing Stable Diffusion and LLMs. Oversaw product roadmap, orchestrated backend API architecture, and deployed microservices for seamless integration. Enhanced object recognition capabilities. Strengths: product management, backend API development, scalable microservice architecture, and object recognition.

RELEVANT EXPERIENCE

- Aug 2022 - May 2025 • **Teaching Assistant**, National University of Singapore
Conducted weekly tutorials or labs, graded assignments, held consultations, supervised student projects, and structured exam questions for CS1101S (Programming Methodology), CS2100 (Computer Organization), and CS2106 (Introduction to Operating Systems), CS4248 (Natural Language Processing).
- Nov 2022 - Present • **Student Tutor**, Raffles Institution Boarding School
Mentor and tutor boarders academically, lead house events, and liaise with staff and parents on student welfare.

PROJECT EXPERIENCE

- 2024 • **SplaxBERT Model for Question Answering (CS4248 - Natural Language Processing)**
Led a team of four in fine-tuning an enhanced BERT-based model, incorporating additional layers to optimize performance on SQuAD V1.1 tasks, achieving an effective balance between model complexity and accuracy.
- 2023 • **Bayesian Stroke Prediction (CS3263 - Foundation of AI)**
Led a team of three to develop a Bayesian modeling approach for stroke prediction, which won the **Best Project Award** in CS3263 under Professor Leong Tze Yun.
- **TutorPro (CS2103T - Software Engineering)**
Led a team of four to create a desktop software solution for private tutors, simplifying administrative tasks and enhancing workflow efficiency.
- 2022 • **AI Agent for Breakthrough (CS2109S - Introduction to AI and ML)**
Designed an AI agent for the "Breakthrough" board game, employing advanced algorithms, such as iterative deepening minimax search, for strategic gameplay.

VOLUNTEER EXPERIENCE

- Aug 2019 • **Programming Mentor for Underprivileged Kids**
Taught a basic programming language, Scratch, to primary students from low-income families, enhancing their digital literacy.