Khai Loong Aw

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Education

2024 -	**Stanford University**, *Ph.D. Computer Science* Starting in Fall 2024.
2020 - 2024	**Singapore Management University**, *B.Sc. Computer Science* GPA: 4.0/4.0.

Peer-Reviewed Publications

2024	Instruction-tuning Aligns LLMs to the Human Brain **K.L. Aw**, S. Montariol*, B. AlKhamissi*, M. Schrimpf**, A. Bosselut** *Conference on Language Modeling (COLM 2024)* + Accepted to *Workshop on Unifying Representations in Neural Models @ NeurIPS 2023* + Accepted to *Workshop on Instruction Tuning and Instruction Following @ NeurIPS 2023*
2023	Training language models to summarize narratives improves brain alignment **K.L. Aw**, M. Toneva *International Conference on Learning Representations (ICLR 2023)* + Top 25% Notable Paper (Spotlight) + Accepted to *Workshop on Memory in Artificial and Real Intelligence @ NeurIPS 2022* + "Best Poster Presentation" award at *MPI-SWS Institute Retreat 2022*
2022	Detecting False Alarms from Automatic Static Analysis Tools H.J. Kang, **K.L. Aw**, D. Lo *International Conference on Software Engineering (ICSE 2022)* + Distinguished Paper Nominee — top 19 papers, top 3% of submissions

Research Experience

2023	**EPFL**, *Research Intern (NeuroAI)* • Advisors: Martin Schrimpf, Antoine Bosselut • Investigated the similarities between: (1) LLM representations and human brain fMRI activity, and (2) LLM and human behavior. Showed that brain-LLM alignment strongly correlates with model size (r = 0.95) and world knowledge (r = 0.81). [COLM 2024]
2022	**Max Planck Institute for Software Systems**, *Research Intern (NeuroAI)* • Advisor: Mariya Toneva • Showed that training language models to summarize narratives improves alignment to human brain fMRI activity. Designed an interpretability method to evaluate brain alignment across various narrative elements (e.g., characters, emotions). [ICLR top 25%]
2022	**Singapore Management University**, *Research Assistant (Computer Vision)* • Advisor: Sun Qianru • Used Self-Supervised Learning as a pre-training step to improve the performance of existing methods for the computer vision task of Semantic Segmentation
2021	**Software Analytics Research Group**, *Research Intern (Machine Learning)* • Advisor: David Lo • Used AI interpretability methods to identify data leakage issues with state-of-the-art ML models for detecting software bugs. [ICSE Distinguished Paper Nominee]

2017	**National University of Singapore**, *Research Assistant (Engineering)*
	• Advisor: Dan Zhao
	• Designed experiments to synthesize novel compounds for carbon capture applications

Industry Experience

2023	**GIC Singapore**, *NLP Project*
	• Built pipeline of text-to-SQL and retrieval-augmented generation LLMs, allowing employees to use English questions to query global stock market databases
2022	**GovTech Singapore**, *AI Engineer Intern (Computer Vision)*
	• Improved the processing speed of state-of-the-art algorithms for Multi-Object Tracking, i.e., tracking the motion of multiple objects or humans within a video sequence

Presentations

2023	**Conference Oral**, *ICLR 2023*
2023	**Conference Poster**, *ICLR 2023*
2023	**Talk**, *ML Tea @ Max Planck Institute for Software Systems*
2022	**Workshop Poster**, *Workshop on Memory in Artificial and Real Intelligence @ NeurIPS 2022*
2022	**Poster**, *Max Planck Institute for Software Systems Institute Retreat*

Awards

2024	**Stanford School of Engineering Fellowship Award** - funding for Year 1 of PhD
2024	**IMDA Gold Award** - top student in B.Sc. CS graduating cohort
2022	**Outstanding Second Year Student Award** - top student in Year 2 of CS undergrad
2021	**Outstanding First Year Student Award** - top student in Year 1 of CS undergrad
2020	**Global Impact Scholarship** - undergrad university's top full-ride scholarship

Hackathons

2021	**1st place**, *SMU Legal Innovation and Technology (LIT) Hackathon*
2021	**3rd place**, *SMU Ellipsis Tech Series Hackathon presented by Goldman Sachs*
2021	**Dentons Rodyk Access to Justice Award**, *SMU LIT Hackathon*
2021	**People's Choice Award**, *Asia-Pacific Legal Innovation and Technology Association*
2021	**Tech-cess to Justice Award**, *Asia-Pacific Legal Innovation and Technology Association*
2021	**Legal Tech Entrant Award**, *Asia-Pacific Legal Innovation and Technology Association*
2020	**Best College Hack**, *Hack-a-Solution* international hackathon

Service

2023 - now	**Reviewer**
	NeurIPS 2024
	Queer in AI Workshop @ NAACL 2024
	Workshop on Representational Alignment @ ICLR 2024
	Workshop on Unifying Representations in Neural Models @ NeurIPS 2023
	Workshop on Instruction Tuning and Instruction Following @ NeurIPS 2023
2021 - 2022	**Vice-President**, *SMU BIA*
	Led team of 23 directors to organize Machine Learning workshops & events for a club with 1000+ students; to allow non-computing students to gain hands-on ML experience

2020 - 2022	**Organizer**, *SMU BIA*
	Workshop on ML Deployment
	Workshop on Deep Learning in NLP
	Workshop on Interview Preparation for ML and Data Engineers
	Workshop on Interview Preparation for Business and Data Analysts
	Other events: Data Science CTF Challenge, Industry Mentor Sharing Session, Project Polish Program, and projects between SMU BIA and industry partners

2017 - 2024	**Mentor**, SMU "Pay It Forward" Mentorship Program 2024
	Mentor, Data Associate Program 2023 - mentored 4 students on their ML project
	Mentor, Data Associate Program 2021
	Student Assistant, SMU Disability Services - assisted a student with hearing disability
	Volunteer, Overseas Community Service Project *Vikasa* - taught students in Jaipur, India
	Volunteer, Meet-the-People Sessions - write letters to help people get financial aid
	Volunteer, Willing Hearts - help in soup kitchen