Khai Loong Aw

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Education

2024 - **Stanford University**, *Ph.D. Computer Science*
Research at the intersection of neuroscience, AI, and psychology.

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**
COLM 2024

2023 Training language models to summarize narratives improves brain alignment
K.L. Aw, M. Toneva
ICLR 2023 - Top 25% Notable Paper (Spotlight)

2022 Detecting False Alarms from Automatic Static Analysis Tools
H.J. Kang, **K.L. Aw**, D. Lo
ICSE 2022 - Distinguished Paper Nominee (top 19 papers, top 3% of submissions)

Research Experience

2024 **Stanford**, *First-Year Research Rotation Program*
• Advisor for Fall 2024 rotation: Dan Yamins

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 LLM-brain alignment strongly correlates with model size (r = 0.95) and world knowledge (r = 0.81). [COLM 2024]
• Contributed LLaMA and T5 models to the open-science Brain-Score Language platform

2022 **Max Planck Institute for Software Systems**, *Research Intern (NeuroAI)*
• Advisor: Mariya Toneva
• Designed a novel interpretability method to evaluate brain alignment across various narrative elements (e.g., characters, emotions). Showed that training language models to summarize narratives improves alignment to human brain fMRI activity. [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**
2024 **IMDA Gold Medal Award** - top student in B.Sc. CS graduating cohort
2022 **Best Poster Presentation**, MPI-SWS Institute Retreat 2022
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; 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 Hackathon, 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