Khai Loong Aw

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Education

2020 - 2024 **Singapore Management University (SMU)**, *B.Sc. Computer Science*
GPA: 4.0/4.0.
Global Impact Scholarship — SMU's top full-ride scholarship
School of Computing & Info Systems Outstanding First Year Student Award
School of Computing & Info Systems Outstanding Second Year Student Award

Preprints / Submissions

2023 Instruction-tuning Aligns LLMs to the Human Brain
K.L. Aw, S. Montariol, B. AlKhamissi, M. Schrimpf**, A. Bosselut**
In submission
+ Accepted to *Workshop on Unifying Representations in Neural Models @ NeurIPS 2023*
+ Accepted to *Workshop on Instruction Tuning and Instruction Following @ NeurIPS 2023*

Peer-Reviewed Publications

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). [ICLR submission]

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 to translate English questions into SQL queries using LLMs, allowing employees to query global stock market databases using simple English questions

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*

Hackathon Awards

2021 **3rd place**, *SMU Ellipsis Tech Series Hackathon presented by Goldman Sachs*
2021 **1st place**, *SMU Legal Innovation and Technology 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 **Reviewer**
Workshop on Unifying Representations in Neural Models @ NeurIPS 2023
Workshop on Instruction Tuning and Instruction Following @ NeurIPS 2023
Workshop on Representational Alignment @ ICLR 2024

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

2020 - 2023 **Mentor**, Data Associate Program 2021 — mentored 4 students on their ML project
Mentor, Data Associate Program 2023
Volunteer, Overseas Community Service Project *Vikasa* — taught students in Jaipur, India
Student Assistant, *SMU Disability Services* — assisted a student with hearing disability