Lily Chen

Research Interests

Machine Learning, Natural Language Processing, Artificial Intelligence, Information Retrieval.

Education

09/24-06/25 (Expected) **MEng in Electrical Engineering and Computer Science**, *MIT*.
Thesis Topic: Grounded large language models in the physical world with sensors
Thesis Advisor: Paul Pu Liang

09/21-06/25 (Expected) **BS in Mathematics, Electrical Engineering and Computer Science**, *MIT*.
GPA: **4.9/5.0**

Research Experience

08/24-Present **Multisensory Intelligence Group**, *PI: Paul Pu Liang*.

- Grounding large language models with sensor modalities, mentoring one undergraduate researcher
- Led demo creation for sensor AI physical activity assistant for MIT Media Lab Members Week [video]
- Collected real-time Inertial measurement unit (IMU) data for six physical activities from smart watch
- Visualized thermal, capacitance, and depth sensor data to assess Vision Language Model understanding

05/23-Present **University of Texas at Austin NLP Group**, *PIs: Junyi Jessy Li and Byron Wallace*.

- Co-lead for **social media medical claim checking with multi-document RCT abstract retrieval**
  - Working with six medical experts on annotation pipeline design and refinement
  - Designed and evaluated various retrieval strategies with state-of-the-art open-sourced embedding models to retrieve top-10 relevant randomized controlled trial (RCT) abstracts from PubMed
  - Defined challenges in medical claim checking like claim vagueness and claim RCT Verifiability, developed and evaluated automatic pipelines for PIO extraction from claims and RCT Verifiability
- Co-lead for **factuality evaluation of plain language summarization of medical evidence**
  - Published at ACL 2024, presented as a poster
  - Created a set of plain language summaries from LLMs through prompt engineering and evaluation
  - Analyzed the results of traditional and LLM-based factual consistency metrics and studied the correlations against fine-grained expert evaluations, created visualizations of summary statistics

06/22-08/22 **Martin Rinard Lab**.

- Analyzed mechanistic interpretability of CodeGen models trained on Karel language
- Created tool for attention visualizations to study patterns of Karel rules to state [example]

Publications

FACTPICO: Factuality Evaluation for Plain Language Summarization of Medical Evidence.
Sebastian Joseph, **Lily Chen***, Jan Trienes, Hannah Louisa Göke, Monika Coers, Wei Xu, Byron C Wallace, Junyi Jessy Li.*
Association for Computational Linguistics (ACL), 2024. [link]

Analyzing Gender Accuracy and Gender Quality in Multilingual Machine Translation with Large Language Models.
Sarah Zhang, **Lily Chen***, William Zhang.*
Widening Natural Language Processing (WiNLP) Workshop at EMNLP, 2023. [link]

Industry Experience

06/22-08/22 **DRW Holdings, LLC**, *Quantitative Trading Intern*, Chicago, IL.

- Completed quantitative research project of Bayesian Skew Fitter for crypto options
- Researched and implemented proprietary options trading strategies, shadowed desks

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01/22-02/22 **Hudson River Trading**, *Crypto Tech Intern*, New York City.
- Built an optimal routing algorithm for pathfinding between crypto liquidity pools
- Researched DeFi technologies, helped build DEX (Decentralized Exchange) aggregator

Selected Awards

For Doctoral Studies

2023 GFSD PhD Fellowship – full tuition and $20,000 stipend for 6 years

For Master's

2024 AAUW Selected Professions Fellowship – $20,000
2023 ASQ Ellis R Ott Scholarship – $7,500

For Bachelor's

2024 Two Sigma Undergraduate Scholarship – $15,000
2023-2024 NSF CRA-WP DREU Program –$7,000
2022-2024 Live Más Scholarship –$10,000
2023 Cognizant Trust & Safety Scholarship –$10,000
2023 Raytheon Technologies Scholarship –$10,000
2023 NAVISITE Next Steminist Scholarship – $10,000
2023 Hedy Lamarr Achievement Award –$7,500
2023 Cadence Diversity in Technology Scholarship –$5,000
2023 Nutanix Advancing Women in Technology Award –$5,000
2023 NSPE Auxiliary Legacy Scholarship – $5,000
2023 Zonta International Women in STEM Scholarship –$5,000
2023 Interface Systems Tech for Good Scholarship –$5,000
2022 Malwarebytes Scholarship – $10,000
2022 FS-ISAC Scholarship – $10,000
2022 SIA Women in Security Forum Scholarship – $10,000
2022 Ridgeline International Scholarship – $5,000
2022 Society of Women Engineers Scholarship –$5,000
2022 VMware Achievement Scholarship –$10,000
2021 Coca Cola Scholarship – $20,000

Activities

09/22-05/23 MIT Society of Women Engineers, Board of Technology.
09/22-05/23 MIT Women in EECS, Mentor.

Academic Service

Spring 2023 18.062: Mathematics for Computer Science, Teaching Assistant, MIT.
Spring 2023 MIT PRIMES Circle Mathematics Mentor.
Fall 2022 Grader for AI + Society, Mathematics for Computer Science, and Calculus, MIT.

Skills

Languages English (fluent), Mandarin Chinese (fluent), Spanish (intermediate)
Programming Python, C, Java
Software PyTorch, NumPy, pandas, Hugging Face, seaborn, LaTeX

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