Raymond Xiong

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EDUCATION

Duke University, Durham, NC   May 2026
BS in Computer Science (AI & Machine Learning), BS in Statistical Science (Data Science), Minor in Linguistics

- GPA: 3.98 / 4.00
- Relevant Coursework: Applied Stochastic Processes* (In Progress); Theory of Deep Learning*, Computer Vision*, Theory & Algorithms for Machine Learning*; Natural Language Processing*; Numerical Analysis*; Design/Analysis of Algorithms; Intro to Database Systems; Intro to Computer Systems; Data Structures & Algorithms; Bayesian & Modern Statistics; Statistical Learning & Inference; Probability; Linear Algebra; Multivariable Calculus; Regression Analysis; Intro to Statistical Consulting; Intro to Data Science; Symbolic Logic (In Progress); Japanese Sociolinguistics; Intro to Linguistics.
  *Graduate-level course taken for credit
- Honors/Awards: Dean's List with Distinction (Top 10% of ~1,300) (Dec 2024, May 2024); Meritorious Winner (Top 9% out of 11,296) in 2023 Mathematical Contest in Modeling (Apr. 2023)

PUBLICATIONS

Wong, L., Ali, A., **Xiong, R.**, Shen, S. Z., Kim, Y., & Agrawal, M. (2025). Retrieval-augmented systems can be dangerous medical communicators. *Proceedings of the 42nd International Conference on Machine Learning*. https://arxiv.org/abs/2502.14898

Xu, Q., **Xiong, R. M.**, Zhao, M., & Wang, H. (2025). The structure, function, and quality of the social convoy for improvements in depressive symptoms in urban and rural China: A 3-year longitudinal cohort study. *International Psychogeriatrics*, *37*(1), 100004. https://doi.org/10.1016/j.inpsyc.2024.100004

Xiong, R. M., Xie, T., Zhang, H., Li, T., Gong, G., Yu, X., & He, Y. (2022). The pattern of cortical thickness underlying disruptive behaviors in Alzheimer's disease. *Psychoradiology*, *2*(3), 113–120. https://doi.org/10.1093/psyrad/kkac017

RESEARCH EXPERIENCE

Agrawal Lab, Duke Department of Computer Science, *Undergraduate researcher*, Duke   Nov. 2024 – Present
- Investigating response verifiability deficits in current-state large language model(LLM)-powered search engine systems to propose new architectures for medical AI
- Built automated pipelines for web scraping and evaluation using state-of-the-art techniques, including LLM-as-a-judge
- Publication accepted as a poster presentation on the 42nd International Conference on Machine Learning (Jul. 2025)

Zhuo Lab, Duke Department of Computer Science, *Undergraduate researcher*, Duke   Mar. 2024 – Present
- Created an end-to-end AI application to facilitate electronic health records data analytics for healthcare researchers; Product in the process of publishing to become a service to authorized Duke Medical School personnel
- Utilized OpenAI GPT-4 API to translate natural language prompts to SQL and visualization code; Boosted model performance to 419% by implementing state-of-the-art few-shot and chain-of-thought prompting methods
- Designed and developed user interface with JavaScript React and Observable Plot libraries
- Presented results in the Duke CS+ summer research program assembly meeting and poster session (Jul. 2024); Tested among contestants in the Duke Datathon by the Department of Medicine and received unanimous positive feedback (Apr. 2025)

Cogan Lab, Duke Department of Neurology, *Undergraduate researcher*, Duke   Sept. 2023 – Present
- Revamped intracranial electroencephalography data processing pipelines from Python to C to enhance efficiency
- Led the packaging and publishing of the pipelines as the IEEG package on PyPI
- Contributed to lab meetings & journal clubs by collaborating with multiple groups to critique each other's work and discuss cutting-edge research literature

Dementia Care and Research Center, Peking University Institute of Mental Health, *Intern*, Beijing, CHN Jun. 2023 – Jun. 2024
- Investigated the influence of the social convoy and urban-rural status on the improvement of depression
- Coded in Python to process data from a China health database, construct models, create data visualizations, and present results
- Published paper on *International Psychogeriatrics*

National Key Laboratory of Cognitive Neuroscience and Learning, Beijing Normal University, *Visiting student researcher*, Beijing, CHN   Nov. 2019 – Sept. 2022
- Proposed a study examining the relationship between cortical thickness and Alzheimer's patients' agitation. Secured funding from China High School Science Talent Program

- Processed MRI T1 weighted image data using the CIVET pipeline and conducted statistical testing in MATLAB
- Published paper on *Psychoradiology*

PROFESSIONAL EXPERIENCE

COMPSCI 572: Natural Language Processing, *Paid Undergraduate Teaching Assistant*, Duke   Jan. 2025 – May 2025
- Led office hours to explain challenging concepts and help debug code
- Graded assignments and exams; Developed answer keys to assignments, including Python implementations of conditional random field models and Transformers
- Communicated regularly with professors, students, and other teaching assistants to ensure widespread availability

COMPSCI 330: Design/Analysis of Algorithms, *Paid Undergraduate Teaching Assistant*, Duke   Jan. 2025 – May 2025
- Led office hours to explain challenging concepts to majors and non-majors; Graded assignments and exams
- Led staff meeting to refresh on topics including dynamic programming and greedy algorithms

STA 432: Statistical Learning & Inference, *Paid Undergraduate Teaching Assistant*, Duke   Sept. 2024 – Dec. 2024
- Led office hours; Graded assignments; Developed answer keys to assignments

COMPSCI 210: Intro to Computer Systems, *Paid Undergraduate Teaching Assistant*, Duke   Jan. 2024 – Dec. 2024
- Led discussion sections and office hours; Graded exams

COMMUNITY SERVICE

Duke Chinese Student Association, *President, Cultural VP & Chair (-Mar. 2024)*, Duke   Oct. 2022 – Apr. 2025
- Steered cultural integration and enhanced the impact of the community on campus by organizing cultural and social events with an average of 100+ attendances; advertised through multiple channels to attract more non-Asian attendees than in previous years
- Increased club funding by 60% during presidency
- Initiated to create a web application collecting student course evaluation feedback to promote community support

Duke Statistical Science Majors Union, *Communications Officer, Active Member (-May 2023)*, Duke   May 2022 – Sept. 2024
- Organized book-bagging information sessions, lunches with faculty and alumni panels to strengthen academic and social bonds within the undergraduate statistical science community

SKILLS & INTERESTS

Programming languages: Python (Pandas, Sklearn, PyTorch), R, MATLAB, Java, C++, C, SQL; JavaScript, XML HTML/CSS
Database systems: Postgres, SQLite, Google BigQuery, DuckDB
Operating systems: Microsoft Windows, Linux/Unix
Languages: Native/Bilingual Mandarin, Native/Bilingual English, Proficient Japanese
Interests: Cooking, Tennis, Pickleball, Music