Eric Xing

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Education

Washington University in St. Louis — St. Louis, MO
Ph.D. in Computer Science; ***GPA: 4.00*** — *Aug 2023 – Present*

Western Kentucky University — Bowling Green, KY
B.S. in Computer Science with Minor in Mathematics, Summa Cum Laude; ***GPA: 4.00*** — *May 2019 – Aug 2023*

Under Review

[1] **Xing, E.**, Stylianou, A., Pless, R., & Jacobs, N. *QuARI: Query Adaptive Retrieval Improvement.* Under Review at The Thirty-Ninth Annual Conference on Neural Information Processing Systems (**NeurIPS'25 Under Review**).

[2] Sastry, S., Dhakal, A., **Xing, E.**, Khanal, S. & Jacobs, N. *Global and Local Entailment Learning for Natural World Imagery.* Under Review at the International Conference on Computer Vision 2025 (**ICCV'25 Under Review**).

[3] Qiao, F., Xiong, Z., **Xing, E.**, & Jacobs, N. *Towards Open-World Generation of Stereo Images and Unsupervised Matching.* Under Review at the International Conference on Computer Vision 2025 (**ICCV'25 Under Review**).

Publications

[1] **Xing, E.**, Kolouju, P., Pless, R., Stylianou, A. & Jacobs, N. *ConText-CIR: Learning from Concepts in Text for Composed Image Retrieval.* The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2025 (**CVPR'25**).

[2] Dhakal, A., Sastry, S., Khanal, S., Ahmad, A., **Xing, E.**, & Jacobs, N. *RANGE: Retrieval Augmented Neural Fields for Multi-Resolution Geo-Embeddings.* The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2025 (**CVPR'25**).
https://doi.org/10.48550/arXiv.2502.19781

[3] Kolouju, P., **Xing, E.**, Pless, R., Jacobs, N., Stylianou, A.. *ConText-CIR: Learning from Concepts in Text for Composed Image Retrieval.* Under Review at The IEEE/CVF Conference on Computer Vision and Pattern Recognition 2025 (**CVPRW'25**).

[4] Leão, A., Banda, B., **Xing, E.**, Gudapati, S., Ahmad, A., Lin, J., Sastry, S., Jacobs, N. & Reis, R. *Applications of Artificial Intelligence in Public Health: Analyzing Built Environment and Addressing Spatial Inequities.* Journal of Public Health

[5] Khanal, S., **Xing, E.**, Dhakal, A., Sastry, S., Xiong, Z., Ahmad, A., & Jacobs, N. *Learning Probabilistic Embeddings for Multi-scale Zero-shot Soundscape Mapping.* The 32nd ACM Multimedia Conference (**ACMMM'24**).
https://doi.org/10.48550/arXiv.2408.07050

[6] **Xing, E.**, Venkatraman, S., Le, T., & Lee, D. ALISON*: Fast Stylometric Authorship Obfuscation.* The 38th Annual AAAI Conference on Artificial Intelligence (**AAAI'24**)
https://arxiv.org/abs/2402.00835

[7] **Xing, E.**, Liu, L., Xing, X., Qu, Y., Jacobs, N., & Liang, G. *Neural Network Decision-Making Criteria Consistency Analysis via Inputs Sensitivity.* 2022 International Conference on Pattern Recognition (**ICPR'22**), pp. 2328-2334.
https://doi.org/10.1109/ICPR56361.2022.9956394

[8] **Xing, E.** & Haleem, K. *Motorcycle Safety Investigation in Kentucky Using Machine and Deep Learning Techniques.* 2022 ASCE International Conference on Transportation and Development, pp. 68 - 80.
https://doi.org/10.1061/9780784484319.007

[9] **Xing, E.** & Xing, G. *A Toolkit for Assessments in Introductory Programming Courses.* Proceedings of the 54th ACM Technical Symposium on Computer Science Education (SIGCSE'23), p. 1285. https://doi.org/10.1145/3545947.3576231

[10] Qu, Y., Yan, D., **Xing, E.**, Zheng, F., Zhang, J., Liu, L., & Liang, G. *Beware the Black-Box of Medical Image Generation: an Uncertainty Analysis by the Learned Feature Space.* 2022 International Conference of the IEEE Engineering in Medicine & Biology Society (EMBC'22), pp. 3849 - 3853. https://doi.org/10.1109/EMBC48229.2022.9871921

Experience

PhD Student @ Washington University Aug 2023 – Present

- Collaborated with National Center for Missing and Exploited Children to develop text-guided image retrieval systems to support analyst investigations.
- Led collaboration with WashU Public Health in extracting built environment features with vision-language models to measure spatial inequities.

NSF REU in Machine Learning + Security @ Penn State May 2022 – Aug 2023

- Proposed the novel authorship obfuscation system ALISON based on greedy replacement of important part-of-speech sequences
- Demonstrated that ALISON achieves 15% greater attack success while maintaining a higher degree of semantic preservation between original and obfuscated texts, all while reducing runtime by $> 10\times$
- Performed label entropy, parameter, and interpretability analyses on ALISON

Student Researcher @ Western Kentucky University Jul 2021 – May 2022

- Managed extensive training over CNN and ViT architectures.
- Developed ensemble-based training algorithms for robust and consistent medical decision making.

Awards

McKelvey School of Engineering CSE Outstanding Scholar Award

Computing Research Association Outstanding Undergraduate Researcher – Honorable Mention

Activities & Service

Kelly Autism Program

Tutor – Math and Computer Science, 2021 – 2022

- Tutored university students with autism spectrum disorders in math and computer science twice weekly
- Provided over 100 hours of service, helping multiple students across a wide range of computer science and math courses

Western Kentucky University ACM Student Chapter

President, 2023; Secretary 2022

- Led biweekly artificial intelligence seminars to provide chapter members with the background and resources to apply common machine learning techniques
- Coordinated department outreach initiatives for the recruitment of underrepresented groups in computer science
- Led International Collegiate Programming Contest (ICPC) practice sessions

Skills

Languages: Python, Java, C/C++, JavaScript, SQL, HTML/CSS, MATLAB

Libraries: PyTorch, PyTorch Lightning, HuggingFace, TensorFlow, NumPy, Pandas, Scikit-Learn, Stanza, NLTK, Captum, Matplotlib

Additional

Major Coursework: Advances in Computer Vision, Nonlinear Optimization, Bayesian Machine Learning, Reinforcement Learning, Text Mining, Machine Learning, Advanced Algorithms, Automata Theory and Compilers, Data Structures and Algorithm Analysis

Other Coursework: Numerical Analysis, Multivariable Calculus, Discrete Mathematics, Linear Algebra

GRE: 336 *(170 Quantitative, 166 Verbal)*, **5.5** Analytical Writing