

Patrick Lynch

Contact

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Address

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USA

Summary

1st year Ph.D. candidate in computer science at Washington University in St. Louis focusing on clinically driven research, with particular interest in applying computer vision methods to neuroimaging applications. Hard-working, effective in groups, with a strong desire to learn new skills. Missouri resident.

Education

Ph.D. in Computer Science

Present

Washington University in St. Louis

M.S. in Computer Science

December 2024

Washington University in St. Louis. GPA: 4.0

B.S. in Computer Science, Cognitive Neuroscience

May 2023

Washington University in St. Louis. GPA: 3.72, Dean's List

Coursework:

Computer Science: Advances in Computer Vision, Data Mining, Large Language Models

Cognitive Neuroscience: Physics of the Brain, Advanced Cognitive Neuroscience, Inside the Disordered Brain

Technical Skills

Software Languages/Frameworks: Python, Swift (UIKit, SwiftUI), Java, HTML, CSS, JS, TS (vanilla, Node, React, Next), C++, C#, SQL, NoSQL

Software Packages/Tools: PyTorch, OpenCV, Pandas, Express, MongoDB, Tailwind, Firebase, Git, Sqlite3

Software Programs: Figma, Unity, Maya, Fusion 360, Houdini

Experience

Research at Cyber-Physical Systems Lab | AI for Health Institute August 2023 – Present

- Developed volumetric keypoint detection model for the automatic screening of Chiari malformations involving the cerebellar tonsils.
- Pretrained 3D vision transformer using the masked autoencoder self-supervised learning method to produce foundational model weights for various downstream brain MRI tasks.
- Trained object detection model and helped improve action recognition model using a vision-language model to oversee a cooking task assessing cognitive decline.

Publications & Presentations

- Wang, Ruiqi & Gao, Peiqi & **Lynch, Patrick** & Liu, Tingjun & Lee, Yejin & Baum, Carolyn & Connor, Lisa & Lu, Chenyang. (2025). CHEF-VL: Detecting Cognitive Sequencing Errors in Cooking with Vision-language Models. Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies. 9. 1-35. 10.1145/3770714.
- Lee, Y., Wang, R., **Lynch, P.**, Gao, P., Baum, M. C., Lu, C., & Connor, L. T. (accepted) Developing an artificial intelligence-based smart kitchen system to detect functional cognitive errors during a simple cooking task. Oral presentation at the 19th World Federation of Occupational Therapy Congress (WFOT), Bangkok, Thailand.