Alex Morehead

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Education

University of Missouri	**Columbia, MO**
*Ph.D. Computer Science	Department of Electrical Engineering & Computer Science*	*August 2020 – May 2025*

• Research Interests: **Machine Learning, Bioinformatics, & Computer Vision**

• Relevant Coursework: Machine Learning, Computational Systems Biology, Algorithms, Natural Language Processing

Missouri Western State University	**Saint Joseph, MO**
*B.S. Computer Science, Minor in Mathematics	Department of Computer Science, Mathematics, & Physics*	*August 2016 – May 2020*

• **Cumulative GPA: 4.0 / 4.0; Major GPA: 4.0 / 4.0; Summa Cum Laude;** General Studies Honors Program

• Relevant Coursework: Data Structures, Software Development, Compiler Theory, Databases, Operating Systems, Networking

Professional Experience

University of Missouri	**Columbia, MO**
*Graduate Research Assistant	Bioinformatics & Machine Learning (BML) Lab*	*August 2020 – Present*

• Research and develop novel geometric deep learning techniques applicable to computational biology and computer vision

• Test and design new equivariant neural networks for learning biomolecular structures

• Organize and conduct large-scale deep learning experiments in a distributed setting

• Review and annotate the latest literature on machine learning

Altec, Inc.	**Columbia, MO**
*Data Science Intern	Data Science Team*	*January 2021 – Present*

• Design and develop end-to-end machine learning pipelines in AWS using Python and R

• Collaborate closely with business stakeholders and analysts to understand data and the problem needing to be solved

• Work with other development teams to integrate models into user applications

Indiana University–Purdue University Indianapolis	**Indianapolis, IN**
*Undergraduate Research Assistant	Department of Computer & Information Science*	*June 2019 – August 2019*

• Effectively contributed to a private repository for the department's NSF-funded 2019 Data Science REU

• Authored an SMS alert pipeline using TensorFlow Lite models on Raspberry Pi microcomputers

• Precisely recorded findings of the gunshot sound detection project in a LaTeX manuscript

Publications

• Owen Koucky, Jacob Wagner, Sofia Aguilera, Benjamin Bashaw, Queena Chen, Anthony Eckdahl, Elise Edman, Paul Gomez, Nick Hanlan, Nick Kempf, Devin Mattoon, Sam McKlin, Christopher Mazariegos , **Alex Morehead**, Shi Qing Ong, Andy Peterson, Maria Rojas, Kyla Roland, Kaitlyn Schildknecht, Haley Seligmann, Kaden Slater, Ali Tauchen, Raechel Tittor, Tatianna Travieso, Dannie Urban, Caroline Willis, John Zhou, Nicole L. Snyder, Laurie J. Heyer, Jeffrey L. Poet, Todd T. Eckdahlb, A. Malcolm Campbell. *Synthetic Biology Bicistronic Designs Support Gene Expression Equally Well in vitro and in vivo*. In press at the American Journal of Undergraduate Research (AJUR).

• **Alex Morehead**, Lauren Ogden, Gabe Magee, Ryan Hosler, Bruce White, and George Mohler. *Low Cost Gunshot Detection using Deep Learning on the Raspberry Pi*. Published with the 2019 IEEE International Conference on Big Data.

Skills & Interests

• Languages/technologies: Proficient in Python, R, Java, & C; familiar with C#, C++, & SQL, Previously used PyTorch, TensorFlow, NumPy, Pandas, & Jupyter. Experienced in Machine Learning, Research & Development, Git, Unix/Linux, & Design Patterns.

• Finished both the full & half marathons in Kansas City.

• Proficient in written and spoken Chinese and Japanese.

Presentations

• [Paper Presentation] **Alex Morehead**, Lauren Ogden, Gabe Magee, Ryan Hosler, Bruce White, and George Mohler. *Low Cost Gunshot Detection using Deep Learning on the Raspberry Pi*. 2019 IEEE International Conference on Big Data. Los Angeles, CA. December, 2019.

• [Poster Presentation] **Alex Morehead**, Lauren Ogden, Gabe Magee, Ryan Hosler, Bruce White, and George Mohler. *Low Cost Gunshot Detection using Deep Learning on the Raspberry Pi*. IUPUI Student Summer Poster Symposium. Indianapolis, IN. July, 2019.

• [Poster Presentation] **Alex Morehead**, Elise Edman, Laurie Heyer, and Jeff Poet. *Variant Sampling in vitro with a Scheduling Twist.* 2019 Alpha Chi National Convention. Cleveland, OH. April, 2019.

• [Poster Presentation] **Alex Morehead**, Elise Edman, Laurie Heyer, and Jeff Poet. *Variant Sampling in vitro with a Scheduling Twist.* 2018 MWSU PORTAL Summer Research Showcase. Saint Joseph, MO. September, 2018.

• [Poster Presentation] Spencer Frazier, **Alex Morehead**, Steven Prine, Emil Petersson, and Joseph Kendall-Morwick. *Predicting Game Genres by Analyzing Code Structure.* 2018 CSCC Central Plains Conference. Maryville, MO. April, 2018.

• [Poster Presentation] Spencer Frazier, **Alex Morehead**, Steven Prine, Emil Petersson, and Joseph Kendall-Morwick. *Predicting Game Genres by Analyzing Code Structure.* 2018 MWSU Multidisciplinary Research Day. Saint Joseph, MO. April, 2018.

Awards & Honors

• **Outstanding Graduating Student** – 1st ranked undergraduate computer science student at Missouri Western	*May 2020*
• **President's Honor Roll** – Awarded certificate for maintaining a 4.0 cumulative GPA	*May 2020*
• **Floyd Tesmer/Strayer University Prize in Computer Science and Engineering** – 1st place undergraduate poster	*April 2019*
• **Alpha Chi Region IV Scholarship** – Received $500 for demonstrating thoughtful computer science scholarship	*April 2019*
• **Grand Midwest Asynchronous Programming Contest** – Won 3rd place with the university's programming team	*April 2017*
• **East Side Lions Club Scholarship** – Awarded $500 for demonstrating exemplary preparation for higher education	*May 2016*

Grants/Fellowships

• Dean's Engineering Excellence Fellowship (University of Missouri). ($30000).	*August 2020 – May 2021*
• James W. and Joan M. O'Neill Graduate Fellowship in Engineering (University of Missouri). ($10000).	*August 2020 – May 2021*
• NSF REU-1659488. Low Cost Gunshot Detection using Deep Learning on the Raspberry Pi. ($5000).	*June 2019 – August 2019*
• NSF MCB-1613281. Collaborative Research: Variant Sampling *in vitro* with a Scheduling Twist. ($2900).	*May 2018 – August 2018*

Professional Affiliations

• *Upsilon Pi Epsilon (UPE)*	*October 2020 – Present*
• *Electrical Engineering & Computer Science Graduate Student Association (EECS GSA)*	*September 2020 – Present*
• *Alpha Chi (AX)*	*March 2018 – Present*
• *Kappa Mu Epsilon (KME)*	*March 2018 – Present*

Community Service

• Second Harvest Food Bank – Package food for local families in need	*September 2013 – Present*
• Word of Life Church - Mentor middle school and high school students	*August 2012 - Present*
• Casas Por Christo – Spent first three college spring breaks building new homes for families in Mexico	*March 2017 – March 2019*
• Habitat for Humanity – Volunteered to help in the construction and development of several area homes	*September 2015*