Pascal Sikorski

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EDUCATION

Saint Louis University
Saint Louis, MO

Double Major Computer Science and Mathematics; Minor in Philosophy — *August 2022 – May 2026*

- GPA: 3.99/4.0 – Awards: Goldwater Scholar, Drahmann Research Sciences Award, Pi Mu Epsilon Inductee, SSE Research Travel Grant, SLU Calculus Award, 6/6 Dean's List.
- Relevant Coursework: Algorithms, Data Structures, Machine Learning, Computer Security, Computer Systems, Scientific Programming, Foundation of Statistics, Discrete Mathematics, Calculus 1-3.

EXPERIENCE

CoRIS Institute Researcher
Corvallis, OR

Intelligent Machines and Materials Lab — *June 2025 – Present*

- Developing a ROS2 workflow to localize and execute crop manipulation workflows autonomously.
- Collaborating on research with Dr. Joseph Davidson.

Caltech WAVE Fellow
Pasadena, CA

Advanced Mechanical Bipedal Experimental Robotics Lab — *June 2024 – August 2024*

- Developed a Belief CBF safety filter in ROS2 to utilize SLAM for control in unstable environments.
- Worked with a TurtleBot3 utilizing slam_toolbox in Gazebo.
- Collaborated on research with Dr. Aaron Ames and Dr. Xiao Tan.

Undergraduate Researcher
Saint Louis, MO

Mecharithm Lab — *January 2024 – Present*

- Developing open-source human collaborative methods for SLAM and other robot control.
- Led the initial Mecharithm research team at Saint Louis University.
- Collaborating on research with Dr. Madi Babaiasl, producing multiple first-author publications.

Undergraduate Researcher
Saint Louis, MO

Water Institute & Freshwater System Sustainability Lab — *November 2022 – April 2025*

- Sampled and analyzed water contaminant patterns within Greater Saint Louis.
- Developed software compatible for fast analysis of NASA GRACE Satellite data.
- Collaborated on research with Dr. Jason Knouft and Dr. Ali Hassan Shabbir.

Teaching Assistant
Saint Louis, MO

Saint Louis University — *August 2023 – May 2024*

- Assisted in teaching CSCI 2100 - Data Structures with Dr. Michael Goldwasser.
- Assisted in teaching CSCI 1060 - Scientific Programming with Dr. David Wisbey.
- Guided and educated a total of 100+ students.

Computer Science Tutor
Saint Louis, MO

Saint Louis University — *August 2023 – May 2024*

- Selected by the University's Computer Science Department as one of seven student tutors.
- Exhibited leadership and adaptability by managing diverse learning needs during group sessions.
- Regularly led sessions, teaching multiple students effectively in a class setting.

PUBLICATIONS AND RELATED WORK

Journal Articles

[1] Tipu Sultan, Guangping Liu, **Pascal Sikorski**, and Madi Babaiasl. "TransNN-MHA: A Transformer-Based Model to Distinguish Real and Imaginary Motor Intent for Assistive Robotics." *IEEE Access*, 99(1):1–1, May 2025.

Conference Papers

[2] **Pascal Sikorski**, Leendert Schrader, Kaleb Yu, Lucy Billadeau, Jinka Meenakshi, Naveena Mutharasan, Flavio Esposito, Hadi Ali Akbarpour, and Madi Babaiasl. "Deployment of Large Language Models to Control Mobile Robots at the Edge." *Proceedings of the Third International Conference on Mechatronics, Control, and Robotics (ICMCR 2025)*. Singapore, Feb. 14-16, 2025, pp. 19-24.

[3] **Pascal Sikorski**, Kaleb Yu, Lucy Billadeau, Flavio Esposito, Hadi Ali Akbarpour, and Madi Babaiasl. "Improving Robotic Arms through Natural Language Processing, Computer Vision, and Edge Computing." *Proceedings of the Third International Conference on Mechatronics, Control, and Robotics (ICMCR 2025)*. Singapore, Feb. 14-16, 2025, pp. 35-41.

[4] Baodong Chen, Wei Wang, **Pascal Sikorski**, and Ting Zhu. "Adversary is on the Road: Attacks on Visual SLAM using Unnoticeable Adversarial Patch." *Proceedings of the Thirty Third USENIX Security Symposium (USENIX 2024)*. Philadelphia, Pennsylvania, Aug. 14-16, 2024, pp. 6345-6362.

Poster Presentations

[5] **Pascal Sikorski**, Tate Severs, Jacob Verschueren, and Jason Knouft. "Socioeconomic Patterns of Water Contamination in St. Louis Water Bodies." *Presented at SSE Undergraduate Student Showcase*. St. Louis, MO, Apr. 30, 2025.

[6] Joel Aikkarakudiyil Joby, **Pascal Sikorski**, Tipu Sultan, Hadi Akbarpour, Flavio Esposito, and Madi Babaiasl. "EMG-TransNN-MHA: A Transformer-Based Model for Enhanced Motor Intent Recognition in Assistive Robotics." *Presented at IEEE International Conference on Big Data (IEEE BigData 2024)*. Washington D.C., Dec. 15-18, 2024, pp. 8691-8693.

Presentations at Professional Meetings

[7] **Pascal Sikorski**. "Control Barrier Functions Through SLAM: A Probabilistic Approach." *Presented at The Leadership Alliance National Symposium*. Hartford, Connecticut, Jul. 27, 2024.

ACTIVITIES

Overwatch Professional Esports Player — Saint Charles, MO
Blizzard Entertainment — *April 2018 – July 2023*
- Diligently practiced with teammates and self-studied for improved coordination.
- Achieved a ranking of 6th in the Americas through consistent performance enhancement.
- Competed in professional leagues from 2020-2023.
- Applying strong team and communication skills to real-world scenarios and challenges.

Competitive Programmer — Saint Louis, MO
Saint Louis University Competitive Programming Team — *August 2022 – Present*
- Currently ranked 1st among all students school-wide.
- Engaging weekly with Dr. Michael Goldwasser to expand knowledge on algorithms and data structures.
- Participating in ICPC tournaments to apply and test skills, with recent competition in Feb. 2023, Feb. 2024, and Nov. 2024.

TECHNICAL SKILLS

Programming: Python, C/C++, Java, MATLAB, R.
Software: ROS2, SLAM, Isaac Sim, Gazebo Classic, Google Earth Engine, Ubuntu/Linux.

RESEARCH INTERESTS

Interests: Human-Robot Interaction, Assistive Robotics, Environmental Robotics, Game Theory, Natural Language Processing.