Sankalp Yamsani

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EDUCATION

University of Illinois Urbana-Champaign, Urbana-Champaign, IL
M.S/Ph.D. student, Department of Electrical and Computer Engineering   January 2022 – Present

University of Illinois Urbana-Champaign, Urbana-Champaign, IL
Bachelor of Science, Computer Engineering   August 2018 – December 2021
- Graduated with High Honors (GPA: 3.90)

PUBLICATIONS ((j):journal (c): conference (d): demo, and "*" denotes first author)

(j) **S.Yamsani***, O. Kwon*, N. Myers, S. Taylor, J. Hong, K. Park, A. Alspach, J. Kim *PAPRLE (Plug-And-Play Robotic Limb Environment): A Modular Ecosystem for Robotic Limbs.* 2025 (Manuscript under review)

(d) J. Kim, M. Jeon, O. Kwon, **S. Yamsani**, N. Myers. *Ringbot and PAPRAS Applications.* Demonstration at *Amazon MARS hosted by Jeff Bezos.* 2025

(j) **S. Yamsani***, K. Gim, T. Smithline, R. Qiu, R. Mineyev, S. Kang, K. Hirashima, K. Park, Y. Kang, S. An, S. Ahn, J. Kim. *Serving Innovation: Seamless Service by Advancing Food Runners with Mobile Manipulation.* 2025 (Manuscript under review)

(c) J. Zhang*, T. Jeong, **S. Yamsani**, S. Choi, J. Kim. *Learning Tone: Towards Robotic Xylophone Mastery.* In *IEEE International Conference on Humanoid Robots (Humanoids).* 2024

(c) S. Ka*, T. Jeong, S. Kim, **S. Yamsani**, J. Kim, S. Choi. *Towards Natural Prosthetic Hand Gestures: A Common-Rig and Diffusion Inpainting Pipeline.* In *IEEE International Conference of the Engineering Medicine and Biology Society (EMBC).* 2024

(c) T. Jeong*, **S. Yamsani**, J. Hong, K. Park, J. Kim, S. Choi. *Generating realistic sound with prosthetic hand: A reinforcement learning approach.* In *IEEE International Conference of the Engineering Medicine and Biology Society (EMBC).* 2024

(c) S. Taylor*, K. Park*, **S. Yamsani**, J. Kim. *Fully 3D printable Robot Hand and Soft Tactile Sensor based on Air-pressure and Capacitive Proximity Sensing.* In *IEEE International Conference on Robotics and Automation (ICRA).* 2024

(j) K. Park*, K. Shin, **S. Yamsani**, K. Gim, J. Kim. *Low-cost and Easy-to-Build Soft Robotic Skin for Safe and Contact-rich Human-Robot Collaboration.* In *IEEE Transactions on Robotics (TRO).* 2024

(c) **S. Yamsani***, K. Shin*, R. Mineyev, H. Chen, N. Gandi, Y. J. Lee, J. Kim. *Exploring the Capabilities of a General-Purpose Robotic Arm in Chess Gameplay.* In *IEEE International Conference on Humanoid Robots (Humanoids).* 2023

(d) **S. Yamsani***, K. Gim*, T. Smithline, R. Qiu, C. Moon, S. Kang, R. Mineyev, K. Park, Y. Kang, S. An, S. Ahn, J. Kim. *MOMO: Mobile Object Manipulation Operator.* Demo Session *IEEE/RSJ International Conference on Intelligent Robotic and Systems (IROS).* 2023

(d) C. Moon*, S. Taylor*, K. Gim, **S. Yamsani**, K. Shin, K. Park, J. Kim. *Robotic Backpack System with Pluggable Supernumerary Limbs.* Demo Session *IEEE/RSJ International Conference on Intelligent Robotic and Systems (IROS).* 2023

(c) J. Hong*, K. Shin, D. Mathur, **S. Yamsani**, J. Yim, J. Kim. *Lip-Inspired Passive Jamming Gripper with Teeth Structure.* In *IEEE/RSJ International Conference on Intelligent Robotic and Systems (IROS).* 2023

(c) **S. Yamsani***, S. Taylor*, K. Shin*, J. Hong, D. Mathur, K. Gim, J. Kim. *Orthrus: A Dual-Arm Quadrupedal Robot for Mobile Manipulation and Entertainment Applications.* In *IEEE International Conference on Robot and Human Interactive Communication (RO-MAN).* 2023

(c) C. Moon*, **S. Yamsani**, J. Kim. *Development of a 3-DOF Interactive Modular Robot with Human-Like Head Motions.* In *IEEE International Conference on Robot and Human Interactive Communication (RO-MAN).* 2023

(c) **S. Yamsani***, K. Gim*, K. Shin*, J. Kim*. *What if a Vacuum Robot Has an Arm?.* In *International Conference on Ubiquitous Robots (UR).* 2023

EXPERIENCE

Aurora Innovation • Software Engineering Intern, Mountain View, CA   May 2022 – August 2022
- Remodeled a class for the Pandar Lidar sensor suite to allow for unit tests increasing debugging capabilities from nothing to a human readable report for users
- Integrated a new class to implement a logging tool that creates offline data to help notify users of any faults with the Pandar System on the vehicle minimizing debugging time from a couple of weeks to a couple of days
- Surveyed multiple teams to design an automated system that looks for broken messages, high latency, and missed data for on vehicle Pandar Sensors

Amazon • Software Development Engineering Intern, Seattle, WA Virtual   May 2021 – August 2021
- Designed and implemented a secure and serverless Application Programming Interface to interact with an AWS S3 bucket, reducing personnel cost to **0 hours** on server maintenance
- Improved analysis of models generated by integrating a multitude of macro and micro levels of data analytic features including a geographical map, heat map, time series, and threshold to help visualize metrics
- Increased teams available **time for innovation** by reducing time spent on nominal data analysis efforts

Illinois Applied Research Institute • Software Engineering Intern, Urbana-Champaign, IL   May 2020 – August 2020
- Reduced repeated code by **33%** leading to faster debugging and development time
- Engineered an optimization that vectorized MATLAB code to reduce runtime by **90%**
- Developed a testing suite and a visual for satellite to earth intersection code decreasing debugging time from **2 hours to a couple of minutes**

Ameren • Digital Intern, Urbana-Champaign, IL   May 2019 - August 2019
- Consolidated an Oracle database for a capital project worth **$250,000** to replace multiple existing databases with a single source of truth for data accuracy and analytics
- Collaborated on an inter-disciplinary team to develop user-friendly interface modules for more than **50** senior management users to view project's analytics
- Developed an API using Python Flask to connect the Oracle database backend to the **new modernized** Angular 7 web applications expediting development process

TEACHING EXPERIENCE

ECE 220 – Computer Systems & Programming   August 2022 - May 2024
- Reinforced key concepts in runtime stack, basic data structures and algorithms, and object oriented programming during office hours and discussion for students •
- Implemented a new C++ assignment for 300+ students to help students apply knowledge about object oriented programming and trees

ECE 391 – Computer Systems Engineering   January 2022 - May 2022
- Guided students through creating programs in x86 assembly and thread programming in C
- Engaged with students to help them build their own linux-style operating systems with support for features such as non-preemptive context switching, segmented memory protection, a read-only filesystem, process scheduling, and device drivers

HONORS AND AWARDS

Harold L. Oleson Undergraduate Teaching Award   Fall 2022