Shardul Nitin Saptarshi

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EDUCATION

University at Buffalo, The State University of New York *Expected May 2024*

Bachelor of Science, Mechanical Engineering with Robotics Minor

- Cumulative GPA: **3.85/4,** *Honors College Student, Academic Merit Scholar, Dean's list (x6), Tau Beta Pi Honors Society.*

Coursework: Robotics Algorithms (Graduate Level), Robotics 1 (Graduate level), CAD and FEA, Dynamic Systems (Controls).

EXPERIENCE

Researcher Assistant, Crashworthiness for Aerospace Structures and Hybrids Lab Buffalo, NY | *Sept 2022 – Present*

- Distributed Pressure Sensing lead for NASA NIAC Phase II Venus Mission, Bio-Inspired Robot – BREEZE.
- Simulated Airfoils in XFOIL, MATLAB, and ANSYS Fluent CFD. Used machine learning techniques for sensor placement.

Engineering Intern, New Scale Robotics Rochester, NY | *Jun 2023 – Aug 2023*

- Designed an ultra high-frequency stroboscopic micromotion analyzer: simulated and optimized circuits using LTspice.
- Used C# and Arduino to design a data logger for rotary stage motor testing and validation.
- Programmed UR Robot, installed fixtures, and suggested design changes for 150,000$+ industrial manufacturing station.

Engineering Intern, 3DATX Corporation Buffalo, NY | *Sept 2022 – Dec 2022*

- Researched Non-Dispersive Infra-Red and Ultraviolet sensors for emissions measurement devices.

Mechanical Engineer Research Intern, UB Industrial and Systems Engineering Buffalo, NY | *Jun 2022 – Aug 2022*

- Developed data transmission mechanism for Digital Twin 3D printing system funded by 2.3m NSF grant in <9 weeks.
- Led microcontroller inter-communication and optimized sensor data transmission in C++, developed & printed CAD models in Solidworks, and modified Marlin Firmware in a team of 7 engineering students.

Researcher Assistant, UB Embedded Sensing and Computing Group Buffalo, NY | *Aug 2020 – May 2022*

- Engineered a device to aid stroke patients in performing physical tasks using haptic cueing.
- Developed tracking mechanism using IMU and Visual Python, used control system to implement a Kalman filter.
- Constructed CAD models, implemented sensors and electronics using C++ and Arduino IDE.

SKILLS

- Computer Skills: Python, C, C++, C#, Visual Studio, Robot Operating System (ROS), Windows OS, macOS, Linux OS, MATLAB, MS Office (PowerPoint, Word, Excel, etc.), GitHub.
- Engineering Skills: SolidWorks, Fusion 360, Autodesk Inventor, 3D printing, Arduino IDE, Soldering, Embedded Systems, ANSYS Fluent, XFLR5, Marlin Firmware, IoT, Integrated Circuits, UR script, PCB design (Easy EDA).

ENGAGEMENTS

Academic Assistant, Campus Living Engineering Living-Learning Community *August 2023 – Present*

- Engineering tutor and academic/professional development coach for 50 students. Held office hours and organized workshops.

President, UB Robotics Club | VEX Robotics Project Lead *May 2022 – May 2023*

- Led a team of 15 students to design a VEX robot and won inter-club competition against IEEE. Handled $9,000 budget.

Vice President, UB Robotics Club | Project Micro Team Lead *May 2021 – May 2022*

- Led club to win 3rd place in the university-wide battle-bots competition. Taught Robotics Fundamentals and handled logistics.

Mathematics Tutor, Thomas J. Edwards Undergraduate Learning Center *Nov 2021 – May 2022*

- Provided drop-in tutoring for undergraduate students in Algebra, Pre-Calculus, Calculus 1, and Calculus 2.

HONORS AND AWARDS

- 1st Place Winner: 2022 Russell L. Agrusa CSE Student Innovation Competition ($4,000 team cash prize).
- 2022 Grace W. Capen Award for outstanding academic achievement (2500$ Scholarship).
- $2000 Yong H. Lee Scholarship for outstanding academic achievement in Mechanical or Aerospace Engineering.
- $1600 Irving H. Shames Scholarship for Excellence in the study of Statics.
- Selected by the Dean of UB to present research in the U.S. Naval Academy Science and Engineering Conference 2022.
- $48,000 International Student Merit Scholarship (highest distinction).

PUBLICATIONS

- Matthew Rubino, Michelle Weng, Jiasheng Chen, Shardul Saptarshi, Marcus Francisco, Alex Francisco, Chi Zhou, Hongyue Sun, Wenyao Xu,"A Campus Prototype of Interactive Digital Twin in Cyber Manufacturing," Sen Sys: ACM Conference on Embedded Networked Sensor Systems, Boston Massachusetts, November 6-9 2022.
- Andrew Woska, Shardul Saptarshi, "Smartwatch Rehabilitation Device", SUNY Undergraduate Research Conference, April 23, 2022.