

# Samyu Kamtam

 samyukamtam |  samyukamtam |  sk12161@nyu.edu |  +(484)691-9608

## EDUCATION

---

New York University

Aug. 2024 – May 2026

M.S. in Mechatronics and Robotics; Specialization: Assistive Robotics

Birla Institute of Technology and Science Pilani, Hyderabad Campus

Nov. 2020 – May 2024

B.E. in Computer Science; Minor: Robotics and Automation

**Relevant coursework:** Reinforcement learning, Foundations of robotics, Math for robotics, Mechatronics, Interactive Medical Robotics, Developing Assistive Technology

## WORK EXPERIENCE

---

**Co-founder: *Impossible Surgery***

June 2025 – Present

- Founded a medical robotics startup under [Dr. Rui Li](#), developing a hydraulic soft-robotic endoscope with computer vision for kidney cancer and stone treatment.
- Leading simulations in SoFa, data collection with miniature imaging systems, and early commercialization (Tech Venture Workshop, grant submissions, fundraising).
- Managing a multidisciplinary team, bridging research with product development. Working with [Dr. Junichi Tokuda](#) for medical advice and guidance.
- **Tools:** SoFa framework, Soft Robotics, Hydraulic Actuation, Computer Vision, Python

**Data Analyst Intern: *Stantec***

Sept 2025 – Dec 2025

- Analyzing Garmin wearable temporal data with environmental factors to assess Human-Building Interacting using stress, heart rate, and other physiological metrics.
- Focused on medically challenged students, linking architectural design to health outcomes.
- Applied statistical analysis and visualization for bio-sensing and human-centered insights.
- **Tools:** Python (Pandas, NumPy, Scikit-learn), Matplotlib, Seaborn, Garmin API

**Graduate Researcher: *STEP Lab, NYU* (Prof. William Peng)**

Sept 2025 – Present

- CS team member developing a humanoid robot with adaptive control.
- Implementing reinforcement learning (Proximal Policy Optimization) in NVIDIA Isaac Sim for robot training and gait manipulation.
- **Tools:** RL, PPO, Isaac Sim, Python, PyTorch

**Graduate Researcher: *Flexible AI-enabled Mechatronics Lab, NYU* (Prof. Rui Li)**

Jan 2025 – May 2025

- Developed a vision-based endoscopic system for tumor detection in lungs.
- Built transformer-based depth estimation with Gaussian SLAM for navigation in low-texture airways.
- **Tools:** Computer Vision, SLAM, Depth Estimation, OpenCV, PyTorch, Python

## PUBLICATIONS

---

*Towards Robust Bronchoscopic SLAM: Transformer-Based Monocular Depth for Gaussian Splatting* Jan 2025

**IEEE ICRA 2025 Workshop**

- With [Dr. Rui Li](#): Developed monocular depth + Gaussian splatting SLAM for bronchoscopic navigation.

**Tools:** OpenCV, SLAM

*Quick Convergence of ADR Mechanism in Dense and Dynamic LoRa-based IoT Networks* Jun 2024

**ACM MobiHoc 2024**

- With [Dr. Nikumani Choudhury](#): Proposed TraffaCon algorithm for adaptive communication in LoRaWAN.

**Tools:** ns-3, LoRaWAN

*Secure and Efficient Data Deduplication Framework for IoT and Fog Computing* May 2023

IEEE COMPSAC 2023 (AINet)

- With [Dr. Jay Kamlesh Dave](#) and [Dr. Choudhury](#): Built secure deduplication framework for IoT/Fog Computing.
- Tools: AES, PythonAnywhere

PROJECTS

Autonomous Vehicle, High-Speed Navigation Sept 2025 – Present

Developing a path planning algorithm for high-speed autonomous navigation in narrow environments; modifying ROS2 Nav2 to generate smooth spline-based trajectories; under guidance from [Dr. Aliasgarh Arab](#).

Tools: ROS2, Nav2, Path Planning, Motion Planning, Python, C++

Hexapod Robot with Hand Gesture Control Nov 2024 – May 2025

Built a 6-legged, 12 DOF robot controlled via a hand exoskeleton; integrated ESP-32 camera for live feed. Designed for applications in rescue operations and inaccessible terrain.

Tools: Arduino, Basic Stamp2, Raspberry Pi, ESP-32 with camera module, Kinematics

Emotion Prediction using EEG Signals Jun 2023 – Dec 2023

Classified emotions (positive/negative/neutral) from EEG data using deep learning (Slit-CNN); achieved 64% accuracy on EEG datasets.

Tools: EEG, PyTorch, CNNs, Signal Processing

TECHNICAL SKILLS

- **Programming Languages:** Python, C/C++, Java, SQL, JavaScript
- **Robotics & Simulation:** ROS2, Nav2, SoFa Framework, Isaac Sim, Arduino, Raspberry Pi
- **Machine Learning & AI:** RL (PPO), Transformers, CNNs, SLAM, Computer Vision, Path Planning, NLP
- **Frameworks & Libraries:** PyTorch, TensorFlow, Scikit-learn, OpenCV, NumPy, Pandas, Matplotlib, Seaborn
- **Tools & Platforms:** Git, Firebase, Jupyter, PyCharm, MATLAB
- **Other:** Data Analysis, EEG Signal Processing, Statistical Modeling

POSITIONS OF RESPONSIBILITY

Teaching Assistant	Haptics and Telerobotics	Fall '25
Joint Secretary and Dance Head	Swaranjali - Classical Arts club, BITS Hyderabad	2021-2023
Joint Secretary and Media Head	Rotaract Club - NGO, BITS Hyderabad	2020-2022
Internship Drive Head, Launchpad	Entrepreneurship Cell, BITS Hyderabad	March 2022
Head Girl	FIITJEE World School	2017-2018

MISCELLANEOUS

TVW	An entrepreneurship program for startups covering business concepts.	2025
IMC	A digital technologies international conference and a technology exhibition.	2023
RoundtableML	Online campus for ML and AI applications.	2023
VLSI	World's largest platform for Semiconductors.	2023
TYE	A student entrepreneurship program covering business concepts.	2020

EXTRA-CURRICULAR ACTIVITIES

**Kuchipudi Dance** Professional Kuchipudi classical dancer with 18 years of formal training and certification.