# TANAY RAGHUNANDAN SRINIVASA

+91 9663083290 | tanay.srinivasa@plaksha.edu.in | GitHub | linkedin.com/in/tanayrs/

## Education

**B.Tech** in Robotics & Cyber-Physical Systems - Plaksha University, Mohali — **CGPA**: 9.47 — 2026
**12th (Karnataka State Board)** - City Composite PU College, Bengaluru — **Percentage**: 76% — 2022
**10th (CISCE)** - National Academy For Learning, Bengaluru — **Percentage**: 90% — 2020

## Work Experience

**Student Tutor**, Plaksha University — Feb 2025 - Present
- Conducting tutorials and computational labs for RO2001: System Dynamics and Control, covering **system modeling** and **performance analysis**.
- Designing and assisting students with the course balancing robot project, focusing on **motor characterization**, **sensor filtering**, and PID control.

**Summer Research Intern**, Robert Bosch Center for Cyber-Physical Systems, IISc — May 2024 - Aug 2024
- Designed and Tuned a Linear Controller with a **Gain Scheduler** to Balance **BiSteering Two Wheeled Robot**, achieving balance for 76s.
- Researched and Measured Loaded and Unloaded **Motor Deadband** and Compensation techniques.
- Measured and Compared Settling Time and Overshoot of the **Bosch Sensor Fusion Algorithm** and a **Kalman Filter**.
- Implemented and debugged techniques to reduce **backlash** in the steering drivetrain, enhancing control precision.

**Research Intern**, Prof. Rudra Pratap and Prof. Andy Ruina, Plaksha University — May 2023 - Jan 2024
- Collaborated with Prof. Pratap and Prof. Ruina on solutions for their **"Introduction to Mechanics for Engineers"** textbook.
- Created 144 Solutions to 3 Chapters: 'Vectors: Position, Force, and Moment', 'Units and Estimation', 'Trusses and Frames.'
- Developed a **Truss Analysis Program** on MATLAB to Visualize Effects of Forces on Two Dimensional Trusses.

## Projects

**Low Altitude Remote Sensing (LARS) UAV for Crop Health Monitoring** | *Prof. Sunita Chauhan* — Jan 2024 - Present
- Calculated **Ground Sampling Distance (GSD)** at varying altitudes for UAVs, benchmarking imaging capabilities for precise crop health monitoring.
- Conducted drone sensor comparisons using DJI Spark, Phantom P4, and Matrice 300 RTK drones to test viability for **crop disease detection**.
- Designed and implemented a **communication protocol** to enable real-time data transfer between UAVs, remote servers, and ground bots.

**Google American Sign Language Fingerspelling Recognition Challenge** | *Prof. Anupam Sobti* — Aug 2024 - Dec 2024
- Achieved a CTC loss of 0.728, ranking **54th out of 1,300+ teams** in the global American Sign Language fingerspelling recognition competition.
- Designed and implemented a **Hybrid Transformer Architecture** combining Squeezeformer and Conformer blocks to improve accuracy.
- Designed and implemented a **Convolutional Squeezeformer** with Squeeze-and-Excitation blocks, to balance computational load and accuracy.

**Kelp Segmentation in Multispectral Images** | *Dr. Siddharth S* — Jan 2024 - May 2024
- Designed and trained a **convolutional neural network** for artifact removal in multi-spectral images, achieving an F1 score of 0.952.
- Utilized a **voting classifier** using ResNet-18,34,50, and Inception networks to detect kelp presence, achieving an F1 score of 0.84.
- Leveraged a U-Net model with an EfficientNet-b3 encoder to perform kelp **segmentation**, achieving a mean dice coefficient of 0.553.

## Relevant Coursework

**RO3001: Sensing and Actuation** | *Prof. Sunita Chauhan, Prof. Amruta Behera*
**ME3001: Engineering Mechanics** | *Prof. Shashikant Pawar*
**RO2001: System Dynamics and Controls** | *Prof. Sunita Chauhan*

## Skills

**System Modelling**: Fourier and Laplace Transforms, Modelling of SISO Systems, Modelling of Two-Port Networks.
**Programming Languages**: Python, C/C++, ROS2, MATLAB, Simulink, Bash, LaTeX.
**Design and Manufacturing**: Fusion 360, RD Works, Laser Cutting.
**Micro-controllers**: Raspberry Pi 3B+, ESP-32, Arduino Uno, Arduino Nano, Teensy 4.1.

## Positions of Responsibility

**Career Development Cell Representative**, Plaksha University — Jun 2024 - Present
Assisted students with placement cycle enrollment and answered queries during the third-year placement cycle.

**Mechanical Workshop Coorndinator**, Robotics Lab, Plaksha University — Aug 2024 - Jan 2025
Developed the floor plan, designed the workbench, procured tools, and set-up the mechanical workshop.

**Student Ambassador**, Plaksha University — Apr 2024 - Aug 2024
Assisted freshmen by answering questions and clarifying doubts about academic programs, campus resources, and student life.

## Achievements

- **SP Dutt Award for Innovation and Impact 2025**, Second Position for Project Titled "Low Altitude Remote Sensing (LARS) UAV for Crop Health Monitoring.
- **Trinity College London Grade 8 Plectrum Guitar**, Level 3 Certificate in Graded Examination with Merit.

## Publications

Nanda TR, Shukla A, Srinivasa TR, Bharava J, Chauhan S, *Advancing Real-Time Crop Disease Detection on Edge Computing Devices using Lightweight Convolutional Neural Networks*, Intelligent Systems (IntelliSys) Conference 2025