Shantanu Nitin Ghodgaonkar

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Education

New York University, Tandon School of Engineering *Sep 2023 - May 2025*
Master of Science in Mechatronics, Robotics and Automation Engineering
Relevant Coursework: Robot Localization & Navigation, Robot Perception, Reinforcement Learning & Optimal Control for Robotics

Visvesvaraya Technological University, Bangalore Institute of Technology *Aug 2017 - Aug 2021*
Bachelor of Engineering in Electronics and Instrumentation Engineering
Relevant Coursework: Control Systems, Virtual Instrumentation, Digital Image Processing, Neural Networks & Fuzzy Logic Systems

Technical Skills

Control Systems: PID Control, LQR Control, Model Predictive Control, Numerical Optimization, PLC Ladder Logic
Robotics Platforms: Universal Robotics UR16, MuJoCo, Gazebo, CoppeliaSim, Nvidia Jetson, Raspberry Pi, Arduino, ESP32
Programming Languages: Python, C++, C, Java, HTML, CSS, JavaScript, XML, SQL, Linux Bash
Frameworks & Libraries: PyTorch, ROS Humble, OpenCV, SciPy, Pinocchio, Simulink, MATLAB Robotics Toolbox
Communication Protocols: UART, USB, I2C, SPI, ClusterDuck Protocol, Dynamixel Protocol 2.0, BLE, WiFi, MQTT, CAN
Tools & Others: Git, Subversion, Docker, Jira, LabVIEW, LPKF CircuitPro, Altium, Eagle, KiCad, Overleaf

Experience

Adjunct Professor | New York University | NY, USA *Jun 2024 - Present*
- Taught **control systems** using **C++, Python, MATLAB, and Simulink**, focusing on **PID, LQR, and MPC**.
- Instructed students on **Standard Operating Procedures** for lab equipment including **oscilloscopes and function generators**.
- Demonstrated the use of the **Allen Bradley PLC** to students, getting them ready for **real-world challenges**.
- Designed and troubleshot **motion planning** for a **mobile hexapod** using **ROS Humble** and real-world testing.
- Monitored and optimized **robotic performance** by debugging **simulation-to-hardware discrepancies** in **MuJoCo**.
- Utilized **Linux, Bash, and Git** for **version control, system integration, and testing** for the **hexapod**.
- Documented **control algorithms, system configurations, and troubleshooting steps** for improved **system reliability**.
- Guided students in **debugging robotics issues**, adapting explanations to different skill levels for better learning.
- Researching and testing applicable **Reinforcement Learning** strategies for **Vision-based Control** of the mobile hexapod.

Software Engineer | Bosch Global Software Technologies | Bengaluru, India *Sep 2021 - Jul 2023*
- Configured and calibrated **diagnostic tools** for **ODX data processing**, ensuring seamless integration into **automotive systems**.
- Identified and resolved **software issues** in **diagnostic tools**, enhancing performance and reducing **debugging time** for **INEOS**.
- Documented **system errors** and submitted **Jira tickets** for issues requiring **senior engineering team support**.
- **Collaborated** with engineering teams to improve **software stability**, cutting **development time** by **70%** with **automation**.
- Developed **Python scripts** to **automate repetitive tasks**, significantly improving **personal efficiency** by **40%**.
- Used **Git** and **Subversion** for **version control** and set up a **Jenkins CI/CD pipeline** for **automated deployment**.
- Updated **documentation** on **system operation, troubleshooting, and deployment process**, ensuring **clear knowledge transfer**.
- Trained **client technicians** and **internal teams** on **new software workflows**, improving **operational efficiency**.
- Conducted **on-site debugging** and **system validation**, ensuring seamless **tool deployment** and **integration** for **multiple clients**.
- Worked in **Agile sprints** using **Jira**, maintaining a **90% on-time delivery rate** while managing **multiple automotive projects**.
- Took on additional responsibilities, including **client-facing roles**, **training new joiners**, and **conducting interviews**.
- Earned **recognition and rewards** from **management** for contributions in improving **team performance** and **client satisfaction**.

Diagnostic Content Engineering Intern | Bosch Global Software Technologies | Bengaluru, India *Mar 2021 - Jun 2021*
- Developed **OTX screens** for **ECU simulation** using **HTML, CSS, and JavaScript** to support **diagnostic workflows**.
- Integrated and validated **OTX screens** for **vehicle testing** in **diagnostic systems**.
- Collaborated with **cross-functional teams** to improve **ECU simulation accuracy** and streamline **workflows**.
- Trained in **AUTOSAR, UDS and CAN** protocols and obtained **Road vehicles – Functional safety (ISO 26262)** certification.

Summer Engineering Intern | FluxGen Sustainable Technologies | Bengaluru, India *Jul 2020 – Sep 2020*
- Developed a **wireless temperature and humidity monitoring system** using the **ESP32 Wi-Fi & Bluetooth module**.
- Created an **Android app** to display **sensor data** in **real-time**, improving **monitoring accessibility**.
- Developed an **ad hoc wireless system** connecting **patients and doctors**, improving care during the **COVID-19 pandemic**.
- Designed **wearable devices** with **ESP32** μC and **LoRaWAN (RFM95)** for **wireless communication**.
- Integrated **sensors (MCP9808, MAX30102)** to track **body temperature, heart rate, and SpO2 levels** in **real-time**.
- Implemented a **meshed network** using the **ClusterDuck Protocol** for **real-time data collection** between **wearable devices**.
- Developed a **web-based user interface** using **HTML and JavaScript**, for **monitoring data** from **wearable devices**.