

Shantanu Nitin Ghodgaonkar

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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, function generators.
- Demonstrated the use of Allen Bradley PLC to students, getting them ready for real-world challenges.
- Designed and troubleshooted motion planning for a 7-DOF 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.
- Mentored students in autonomous robotics, fostering problem-solving skills in motion planning and control systems.
- Passionate about robotics and automation, driving improvements in hands-on learning and system deployment.

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, improving 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 with 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.
- Participated in AUTOSAR, UDS and CAN Protocol Training.

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 μ C 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 web-based user interface using HTML and JS, for monitoring data from wearable devices.

EDUCATION

New York University, Tandon School of Engineering

Sep 2023 - Present

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