Jovan Clive Menezes

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Education

Ph.D., Robotics (Minors: CS, ECE, ME) | **Cornell University –** Ithaca, NY | **2024 – present**

- **Research:** Multi-Object Tracking for autonomous vehicles using probabilistic + deep learning models (Advisor: Mark Campbell).
- **Projects:** QuadSafe: MPC for Quadrotor with Safety Barriers and Stability; Personalized constraint learning for AV control.

M.S., Mechanical Engineering (Minors: CS, ECE) **| Cornell University** – Ithaca, NY | **2021 – 2023**

- **Thesis:** Human-Robot and Multi-Autonomous Agent Collaborations in Cyber-physical Environments (Advisor: Silvia Ferrari).
- **Projects:** Autonomous localization, mapping, and motion planning for mobile robots; Robotic handwriting recreation; Vehicle steering using MPC; Comparison of full-state localization filters for quadrotors; RpiPiano: A Capacitive Touch Mini-piano.

B.Tech., Mechanical Engineering | FCRIT (Mumbai University) **| 2015 – 2019**

- **Thesis:** Design and Development of an Autonomous Hexapod Robot.
- **Projects:** Color-based object sorting robot manipulator; Bluetooth-controlled automated Peaucellier Mechanism.

Technical Skills

- **Programming:** C, C++, Python, MATLAB, Octave.
- **Frameworks:** ROS/ROS2, Gazebo, MoveIt, Unreal Engine, Linux.
- **Tools:** AutoCAD, Autodesk Inventor, Autodesk Fusion 360, SolidWorks, ANSYS.
- **Hardware:** Arduino, Raspberry Pi, Intel NUC, XR & motion capture systems.
- **Robotics:** Estimation (Localization, Tracking, Sensor fusion, SLAM), Perception (Mapping, Computer Vision), Motion Planning (Task Assignment and Path Finding), Control (MPC, LQR, Imitation Learning).

Experience

Cornell University – Ithaca, NY | **Laboratory Research Assistant** | **June 2023 – August 2024**

- Built cyber-physical frameworks for human-robot collaboration in industrial warehouses and underwater environments.
- Developed sensor simulations in Unreal Engine for sonar models and integrated wearable sensors into VR-controlled robots.
- Applied sensor fusion, dynamic modeling, and control for autonomous mobile and underwater robotic systems.

Petrofac Engineering India Pvt. Ltd. – Mumbai | **Engineer III** | **July 2019 – May 2021**

- Engineered Non-API centrifugal pumps, workshop equipment, and water treatment packages for an oil and gas facility; reduced procurement costs by ~10% through effective technical bid evaluations.
- Drafted material requisition, package specification, evaluated design drawings & 3D CAD models, and oversaw factory tests.

Bhabha Atomic Research Centre – Navi Mumbai | **Summer Research Intern** | **June 2018 – July 2018**

- Formulated a correlation for mechanical properties from Uniaxial Tensile Test and Small Punch Tests (SPT) for copper alloys across cryogenic temperatures.
- Performed FEM simulations in ANSYS Workbench using CAD models from Autodesk Inventor; applied regression analysis to quantify relationships.

Additional Internships: ONGC (submarine pipeline design), Godrej & Boyce (process automation), Mazagon Dock (shipbuilding), Bharat Petroleum (equipment maintenance).

Selected Publications

1. Discerning Discretization for Unmanned Underwater Vehicles DC Motor Control (link) (Editor's Choice, *Highly Cited Paper*).
2. UnRealTHASC – A Cyber-Physical XR Testbed for Underwater Real-Time Human Autonomous Systems Collaboration (link).
3. Mapping, Trajectory Planning, and Navigation for Hexapod Robots Using ROS (link).
4. Augmentation of Mapping and Autonomous Navigation for Hexapod Robots by using a Visual Inertial System (link).
5. MuModaR: Multi-modal Framework for Human-Robot Collaboration in Cyber-physical Systems (link).

Selected Awards

- Awarded **Telluride Scholarship** by the Cornell Branch of the Telluride Association (Postponed).
- Awarded **Cornell Fellowship** by the Sibley School of Mechanical & Aerospace Engineering for Fall '24.
- Won the **best senior thesis** in the institute for the 2018-19 academic year, awarded by TATA Consultancy Services and FCRIT.
- Awarded Research Grant by the **Mumbai University** for undergraduate thesis research.
- Recipient of the Academic Achievement Award by Larsen & Toubro for securing **3rd rank** in the department in Sophomore year.