Jovan Clive Menezes

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Education

Cornell University Ithaca, NY
Master of Science, Mechanical Engineering (minor in Electrical & Computer Engineering) May 2023
Concentration: Robotics and Autonomy (GPA: 3.691)
Relevant coursework: Autonomous Mobile Robots, Feedback Control Systems, Robot Perception, Robot Manipulation, Computer Vision, Adaptive & Learning Systems, Model Based Estimation, Intermediate Dynamics, and Multivariable Control Theory.

- Graduate researcher at the Laboratory for Intelligent Systems and Controls under the guidance of Dr. Silvia Ferrari.
- My research projects focus on developing state-of-the-art cyber-physical testbed for experiments related to real-time human-autonomous system collaboration (by using Unreal Engine, Virtual Reality, Motion Capture system & Computer Vision techniques) and implementing deep-learning based real-time pose estimation algorithms to develop Bayesian Networks for human activity recognition & surveillance.
- Awarded Graduate Research Assistantship (GRA) by the Sibley School of Mechanical & Aerospace Engineering for Summer '22.
- **Relevant course projects:** Localization, mapping & motion planning for autonomous ground (wheeled) robots, Robot writing, Vehicle Steering using Model Predictive Control, Dynamic analysis & modelling of quick return motion mechanism.

Fr. Conceicao Rodrigues Institute of Technology (F.C.R.I.T. affiliated to University of Mumbai) Mumbai, Maharashtra
Bachelor of Technology, Mechanical Engineering (GPA: 9.08/10.0 6th in class) 2015 – 2019

- Bachelor's Thesis project titled 'Design and Development of an Autonomous Hexapod Robot using ROS' was selected as the best thesis project in the Institute for the year 2018–19 by Tata Consultancy Services (T.C.S.) & F.C.R.I.T.
- Thesis project was awarded total funding of Rs.50,000 (around $650 USD) by T.C.S., F.C.R.I.T. & University of Mumbai under the Minor Research Grant 2018-19.
- Recipient of Academic Achievement Award by Larsen & Toubro for securing 3rd rank in the department in Sophomore year.
- Member of Indian Society of Heating, Refrigerating and Air Conditioning Engineers (ISHRAE) and Society of Automotive Engineers (SAE) college student chapter.
- **Relevant course projects:** Color sorting robotic manipulator, Automated Peaucellier mechanism using Bluetooth control, Design of Internal Combustion Engine & Gearbox for SAE BAJA competition.

Experience

Petrofac Engineering India Private Limited, Mumbai, India
Engineer III, Mechanical Engineering Department **July 2019 – May 2021**

- Carried out all the detailed engineering activities for the Non-API pumps, Workshop Equipment, and Water Treatment Package (around $3M in Purchase Price) as a rotating equipment engineer on the Ain Tsila Oil and Gas Plant Development Project.
- Responsibilities prior to award of purchase order include review & study of contract & Front-End Engineering Design (FEED), drafting material requisition, package specification, package datasheet, technical queries based on vendor offers, negotiating with vendors and client to meet the design requirements, preparing the Technical Bid Evaluation (TBE), and purchase requisition.
- Responsibilities post-award of purchase order involve review of vendor documents, coordinating with other disciplines and vendors to ensure interface compliance, 3D CAD Model Review, and inspecting factory tests for the final assembled package.
- Achieved reduction in purchase price for the workshop equipment as compared to the proposal price.
- Assisted the Lead Engineer by handling multiple inter-departmental interface engineering activities as a graduate engineer.

Oil and Natural Gas Corporation Limited, Mumbai, India
Summer Intern, Offshore Design Engineering Services **June 2019 – June 2019**

- Completed a project on the Design of Submarine Pipeline (underwater pipeline) system, used for transportation of oil and gas from offshore platforms to onshore refineries.
- Reviewed vendor calculations for the design of these submarine pipelines and verified compliance to DNV 1981 design standard.

Godrej and Boyce Manufacturing Company Limited, Mumbai, India
Engineering Intern, Engineering Cell **December 2018 – January 2019**

- Completed project training in Security Solutions on Strong Room Door process improvement.
- Assisted in the R&D sector on the design process of semi-automating the manufacturing of these doors using conveyor system.

Bhabha Atomic Research Centre, Navi Mumbai, India
Summer Research Intern, Accelerator and Power Pulse Division, Electron Beam Centre **June 2018 – July 2018**

- Determined a correlation between the Ultimate Tensile Stress & Toughness obtained from Uniaxial Tensile Test & Small Punch Test for Copper & its alloys at different cryogenic temperatures.
- Conducted simulations in ANSYS Workbench using Finite Element Analysis of the CAD model developed in Autodesk Inventor. Implemented Regression analysis to determine the relationship for Ultimate Tensile Stress & Toughness from both tests.

Mazagon Dock Shipbuilders Limited, Mumbai, India

Engineering Intern, Ship building division **December 2017 – January 2018**

- Completed a short-term industrial training on the equipment & processes involved in shipbuilding at the Plater & Assembly shop.
- Studied the manufacturing processes used in shipbuilding such as mold lofting, plasma cutting & different welding techniques.

Bharat Petroleum Corporation Limited, Mumbai, India

Technical Intern, Central Engineering Workshop **June 2017 – July 2017**

- Assisted the workshop's deputy manager by monitoring and reporting the progress on the maintenance operations carried out on a Multistage Horizontal Centrifugal pump.
- Completed an overview study of the basic maintenance processes carried out on the static and rotary equipment in the workshop.

Skills

- **Software**: AutoCAD, Autodesk Inventor, Autodesk Fusion 360, ANSYS (APDL & Workbench), C, C++, Python, MATLAB, GNU Octave, Arduino, Robot Operating System (ROS), Unreal Engine (Blueprint and C++), Motive 3.0, DeepMotion.
- **Hardware**: Intel NUC, Microsoft Kinect, WidowX 250s, iRobot Create, PhantomX AX, OptiTrack Motion Capture System, VIVE Virtual Reality equipment.
- **Documentation**: Microsoft Word, Excel, and PowerPoint.

Publications

1. Nitesh P. Yelve, **Jovan C. Menezes**, Shubhankar B. Das, and Bhavik M. Panchal, Augmentation of mapping and autonomous navigation for hexapod robots by using a visual inertial system, Proceedings of International Virtual Conference on Intelligent Robotics, Mechatronics and Automation Systems (IRMAS-2021), Journal of Physics: Conference Series, 1969, 2021, DOI: https://iopscience.iop.org/article/10.1088/1742-6596/1969/1/012005#back-to-top-target

2. **Menezes J.**, Das S., Panchal B., Yelve N.P., Kumar P. (2022) Mapping, Trajectory Planning, and Navigation for Hexapod Robots Using ROS. In: Govindan K., Kumar H., Yadav S. (eds) Advances in Mechanical and Materials Technology. Lecture Notes in Mechanical Engineering. Springer, Singapore. https://doi.org/10.1007/978-981-16-2794-1_76

3. Published a technical article on 'Net Zero Energy Buildings' in ISHRAE's national newsletter 'Student Connect' Volume 04, June 2019 (https://drive.google.com/file/d/1pNw5MwumDsdlS9hmgD6Tp1WibMhzVVUg/view?usp=sharing).

Awards/Achievements

- Achieved 3rd position at Aakash 2020 – National Symposium on Nascent Technologies in Aerospace Engineering & Aviation Systems organised by The Aeronautical Society of India, Indian Women Pilots Association, IIT Bombay, and F.C.R.I.T.
- Secured 2nd position at Aakash 2019 – National Symposium on Nascent Technologies in Aerospace Engineering & Aviation Systems organised by The Aeronautical Society of India, Thakur Institute of Aviation Technology and F.C.R.I.T.
- Won the 3rd position and 1st position in National Level Technical Paper Presentation and National Level Technical Project Poster competition at Calibre 2k19 – organised by The Institution of Engineers (India) and F.C.R.I.T.
- Achieved 3rd position at XhibiTech'19 – National Level Project Exhibition & Competition.
- Secured 2nd position under the Software category at the IEEE Inter-Collegiate Technical Project competition.
- Awarded by ISHRAE for securing highest marks in Thermodynamics (Sem 3) amongst ISHRAE College Student Chapter.
- Awarded by St. Joseph's High School for securing the highest marks in English course in SSC (Grade X) board exam.

Technical Talks/Lectures/Presentations

- Presented posters based on my research at the AMbiENtE (Autonomy and Mobility in Engineered and Natural Environments) Workshop at Cornell Tech, NYC.
- Delivered a technical talk on 'Role of a Mechanical Engineer in the EPCC (Engineering, Procurement, Construction and Commissioning) Oil & Gas Sector' as a guest lecturer to the final year mechanical engineering students at F.C.R.I.T. (May 2021).
- Delivered a technical talk on 'Use of Computer Aided Engineering Tools for Analysis of a Mechanical System' as a guest lecturer to the senior year mechanical engineering students at F.C.R.I.T. (August 2020).
- Delivered a lecture on my Bachelor's Thesis project to the junior year mechanical engineering students at F.C.R.I.T. as a part of department initiative lecture series to help students choose their thesis project (March 2019).

Other Experience

- Library Student Assistant at the John M. Olin Library and the Harold D. Uris Library at Cornell University (May 2022 – present).
- Member of the student organizing committee for the 2nd Biennial International Conference on Nascent Technologies in Engineering (January 2017) held at F.C.R.I.T.
- Organized a Summer Camp (May 2015) with games, competitions, and entertainment at St. Joseph's High School for students.

Certifications/Professional Development

- Completed a diploma course on AutoCAD offered by CADD Centre Training Services, Mumbai.
- Completed a certified online course on 'Introduction to C++' offered by Microsoft on the edX platform.
- Completed a certified online program on 'Mechanical Behavior of Materials' offered by MIT on the edX platform.