Omkar Bhoite

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Fields of Interest

- Robotics, Physics, Automation, Rocket Science, Astrophysics.

Education Credentials

2020-Pursing: **Master's: Autonomous Systems**, *College name: KTH Royal Institute of Technology , EIT Digital ICT Innovation (Recipient of European Institute of Innovation and Technology Masters Scholarship)* ***Exchange year at Eötvös Loránd University, Budapest.***

2015-2019 : **Bachelor of Engineering : Instrumentation & Control Engineering**, *College name: All India Shri Shivaji Memorial Society's Institute of Information Technology, Pune (Savitribai Phule Pune Univeristy)*, **CGPA : 8.57 / 10** .

Research Experience

February 2021 - July 2021: **Researcher at Neuro-Computing Systems Lab, KTH Royal Institute of Technology:** *Worked on robotic head motor dynamics and to control it using the ROS topics and services, also working on event based camera's (edvs4337) to interface with ROS*

April 2021 - August 2021: **Researcher at Non-Linear Quantum Photonics, KTH Royal Institute of Technology:** *Built a software to automate lab equipment's, Worked with single and dual channel optical meters, high power tunable lasers, optical spectrum analyzer, remote temperature controller, [E1100] Three-channel High Voltage Amplifier for driving low voltage piezos, 4-channel time to digital converter.*

August 2020 - January 2021: **Member of the Miniature Student Satellite Team. Working in the domain of "Functional Testing".**

2018: **Building Gigahertz Transimpedance amplifier for low temperature RF amplification and shot noise measurement:** *Developed a technique to build a miniature size printed circuit board for implementing the TIA circuit and also studied how to troubleshoot the problems like EMI, parasitic capacitance etc.., that hamper's the operation of the amplifier for measuring the signal in RF region and also signal amplification. Analyzed commercially available TIA to see whether it meets the specification specified by the manufacturer.*
Indian Institute of Science Education and Research (IISER), Pune, Maharashtra, India
Guide & Adviser : Dr. Datta Shouvik

2017-2018 : **Fabrication of Micropillars and Study of Distributed Bragg Reflectors towards Exciton-Polaritons:** *With the state-of-the-art technology of LW405B laser writer for photolithography, I fabricated different structure of copper like disc & pillars of varying dimensions. Modified the MATLAB code meant for two layer DBR into a generalised code for "n" number of layers DBR, also coded the program for DBR with spacer in it, for studying microcavity and stop-band formation for different Bragg's wavelength and layers of dielectric with different refractive index. Studied exciton-polariton laser, its woking principle and how it produces coherent light without population inversion unlike convential lasers.*
Indian Institute of Science Education and Research (IISER), Pune, Maharashtra, India
Guide & Adviser : Dr. Datta Shouvik

Projects & Seminars

2020 - 2021: Bosch Future Mobility Challenge (One of the top three teams from Sweden qualified for the challenge.)

Master's 1^{st} Sem: Evaluation of Effective Sensor Positioning in Autonomous Vehicles via Simulation.

B.E. 7^{th} Sem & 8^{th} Sem: Designed and developed an automated testing equipment for a switch mode power supply (SMPS) & its analysis and data acquisition using LabVIEW.

B.E. 6^{th} Sem: Studied the working of gyroscope & accelerometer for determining the spatial position of the drone in 3-Dimensonal Space and also to calculate it's velocity. Studied YPR parameters of drone and implemented it to have a controlled positioning of the drone in 3-D Space.

B.E. 5^{th} Sem: Presented a seminar on topic " Quantum computer " with thorough details on Maxwell Demons and Energy Exchange method to build cryogenic system for quantum computer to reach the near absolute zero temperature. Introduced the concept of logic gates that can be implemented using the QC.

B.E. 4^{th} Sem: Designed & built a object counter circuit using IC 4026 CMOS Decade Counter/ Divider.

B.E. 3^{rd} Sem: Designed & built a regulated power supply using IC 7805 & IC 7905.

Computer Skills

- ***Software*** : Matlab, Arduino IDE, LabVIEW, Simulink, MultiSim, Ultiboard, LaTeX, *TensorFlow, ROS (*Learning / Beginner).
- ***Languages*** : C Language, Netbeans, SQL, Python.

Publications

- Dipti Umed Singh, **Omkar Bhoite**, Remya Narayanan, ***" Temperature Tunable Optical Transmission control of VO_2 nanostructures by IR based 1-D Photonic crystals as hybrid Photonic absorbers. "***
- **Omkar Vilas Bhoite**, Pramod Bhausaheb Divekar, Kshitij Vijay Bhalerao & Prof. Hemant Chaudhari, ***" Design and development of an automatic testing equipment for a Switch Mode Power Supply (SMPS) and its analysis and data acquisition using LabVIEW. "***

Achievements & Certifications

2019 : Best Outgoing Student of Department of Instrumentation and Control Engineering (College name: All India Shri Shivaji Memorial Society's Institute of Information Technology, Pune)

2019 : Subject Topper in Computer Techniques & Application (College name: All India Shri Shivaji Memorial Society's Institute of Information Technology, Pune)

2019 : Workshop on "FLEXIBLE ELECTRONICS" at IIT Kanpur.

2018-2019 : Third Year of Engineering Topper (Department of Instumentation and Control Engineering (College name: All India Shri Shivaji Memorial Society's Institute of Information Technology, Pune))

2018 : Participated in RoboWar competition at VIT, Pune.

2017-2018 : Second Year of Engineering Topper (Department of Instumentation and Control Engineering (College name: All India Shri Shivaji Memorial Society's Institute of Information Technology, Pune))

2017 : Participated in RoboWar, Search N destroy & Bot Wrestling competitions at MINDSPARK Technical Event conducted by Government College of Engineering, Pune.

2017 : Participated in RoboRace competition at AISSMS's College of Engineering.

2016 : Secured 1^{st} position in "How Tech Works" competition conducted by IIT, Madras in Shastra Technical event

2016 : Workshop on Embedded System (Arm Cortex MSP432) by Texas Instrumentation at IIT, Bombay.

2016 : Secured 3^{rd} position in "Let's C programming" competition in event INSTRON conducted by AISSMS IOIT, Pune.

2011-2013 : IT Quizzes by Tata Consultancy Services.

Leadership

- Class Representative of 2^{nd} & 3^{rd} year of engineering course
- Team leader of the robotics team.

Hobbies

- Watching TV Series (Favourite's: Naruto, The Big Bang Theory, Silicon Valley, Young Sheldon, Marvels Agents Of S.H.I.E.L.D & also love to watch Discovery & NatGeo), Drawing, Painting & Playing Badminton, Exploring wilderness, Trekking.