Shafeef Omar

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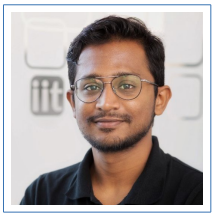

Professional Experience

Apr'22 – Present **Research Fellow**, Istituto Italiano di Tecnologia, Genova.
Learning safe and robust locomotion policies. Addressing the sim-to-real gap in learning and model-based systems. (DLS@IIT) [Headed by Dr. Claudio Semini].

Jul'21 – Mar'22 **Research Associate**, Indian Institute of Science, Bangalore.
Continual Learning for robotic systems. Artificial Intelligence and Robotics Laboratory (AIRL@IISc) [Guided by Prof. Suresh Sundaram].

Jan'20 – Jun'20 **Research Intern**, Siemens, Bangalore.
Deep Learning for synthesis of logic formulas from requirement specifications (Neural Machine Translation) for continuous model evaluation in autonomous navigation scenarios.

May'19 – Aug'19 **Summer Research Intern**, TCS Research and Innovation Labs, Chennai.
Game Theory and machine learning modelling of warehouse inventory management in tri-level multi warehouse supply chain with connected retailers.

May'18 – Aug'18 **Full-Stack Developer Intern**, Accelerate, Chennai.
Conceptualised and created application for Schools for enhancing the Parent-Teacher Communication with features like academic performance analyser, scholar leader board, workflow for student's assignments, SWOT analysis etc.

Publications

2023 **SafeSteps: Learning Safer Footstep Planning Policies for Legged Robots via Model-Based Priors**
Omar S., Amatucci L., Turrisi G., Barasuol V., Semini C.
Submitted to IEEE-RAS International Conference on Humanoid Robots (2023) [paper] [video]

2022 **Fast Convex Visual Foothold Adaptation for Quadruped Locomotion**
Omar S., Amatucci L., Turrisi G., Barasuol V., Semini C.
4th Italian Conference in Robotics and Intelligent Machines (I-RIM) [extended abstract] [slides]

Education

2016 – 2021 **B.Tech, M.Tech, Engineering Design**, *Indian Institute of Technology Madras*, India.
GPA: 8.10/10.0
Thesis: *Learning meta-controllers for continuous robot control*
Relevant Coursework: *Deep Learning in Computer Vision, Field and Service Robotics, Mechatronic Systems Design, Control Systems, Multivariate Data Analysis*

Sep'19 – Jan'20 **Exchange Semester, Computer Science and AI**, *University Of Groningen*, Netherlands.
Relevant Coursework: Machine Learning, Neural Networks and Computational Intelligence, Image Processing, Robotics

2015 – 2016 **12th Grade**, *Vijaygiri Public School*, India.
Percentage: 94%

2013 – 2014 **10th Grade**, *Peevees Model School*, India.
GPA: 10.0/10.0

Key Projects during Bachelors and Masters

Dec'20 – Jun'21 **Learning Meta-Controllers for Continuous Robot Control**
Mujoco-based simulation and experimental evaluations of model-free and model-based meta-reinforcement learning approaches in dynamic environments for continuous robot control tasks.

Feb'19 – May'19 **Simultaneous Localisation and Mapping (SLAM) for Mobile Robotics.**
Implemented a denoising autoencoder-based ConvNet for fast and robust loop closure in monocular SLAM systems by leveraging fixed-length HOG descriptors to train on Places dataset, outperforming the de facto DBoW2 in performance and runtime.

Oct'19 – Jan'20 **Fetal ECG Extraction from Maternal ECG.**
Devised and executed extraction of fetal ECG from maternal ECG signals as a noise-cancellation system using wavelet analysis, LMS adaptive filtering algorithm, and spatially selective noise filtration (SSNF) algorithm, significantly improving SNR values compared to vanilla LMS adaptive filter.

Positions of Responsibility

2022 **Reviewer**, Congresso Brasileiro de Automática (CBA) 2022 for Robotics.

Nov'20 – Apr'21 **Teaching Assistant**, Programming, Computing and Graphics using Python (ED3170).

Apr'18 – Feb'19 **Head, Developer Operation of Saarang**, India's biggest entirely student run cultural festival.

Aug'17 – Jul'18 **Head, Web Operations of Tensors**, mock JEE Examinations platform by students of IIT-M.

Scholastic Achievements

2016 **P.M. Foundation Scholarship.**
For academic excellence.

2016 **Joint Entrance Examination (JEE).**
Among Top 5% of the candidates chosen for admission to IIT (India).

2016 **Kerala Engineering Entrance Examination.**
Ranked 96 among over 100,000 aspirants (India).

Relevant Technical Skills

Languages C/C++, Python, MATLAB, SQL, JavaScript

Libraries and frameworks Pytorch, Tensorflow, ROS, RaiSim, IsaacSim, Mujoco, OpenCV, OpenAI Gym, Docker

References

Dr. Claudio Semini, *Principal Investigator*, Istituto Italiano di Tecnologia
✉ : claudio.semini@iit.it

Prof. Suresh Sundaram, *Associate Professor*, Indian Institute of Science Bangalore
✉ : vssuresh@iisc.ac.in

Prof. Asokan Thondiyath, *Professor*, Indian Institute of Technology Madras
✉ : asok@iitm.ac.in