Suhan Shetty

Lausanne, Switzerland
+41 762931120
✉ suhan.shetty@epfl.ch
suhannshetty.github.io
in SuhanShetty
SuhanNShetty

Summary

I use machine learning and control theory to develop efficient algorithms for robot learning.

Education

June 2019 – Now	**Doctor of Philosophy**. École Polytechnique Fédérale de Lausanne **Thesis:** Low-rank Approximation Techniques in Robot Learning
June 2014– June 2016	**Master of Engineering**. Indian Institute of Science, Bangalore, India **Thesis:** Trajectory Tracking and Control of Car-like Robots

Work Experience

2023 June – September	**Desney Research Studios**, *Zurich*, Switzerland. *Research Intern*
June 2019 – Now	**Idiap Research Institute**, *Martigny*, Switzerland. *Research Assistant at Robot Learning and Interaction Group* Developing fast and memory efficient algorithms for robot exploration as used in the project CoLLaboratE for industrial assembly tasks, reinforcement learning and fast optimization algorithms as used in projects Learn-Real and MEMMO for robot control and motion planning.
Oct 2018 – April 2019	**Robert Bosch Center for Cyber-Physical Systems**, *Bangalore*, India. *Research Associate* Applied reinforcement learning to generate walking gaits for an in-house manufactured quadruped robot called Stoch.
July 2016 – Mar 2018	**The MathWorks Inc.**, *Bangalore*, India. *Engineering Development Group* Developed MATLAB and Simulink based models for demonstrating the applicability of MATLAB products such as Control System Toolbox, Robotics System Toolbox and Automated Driving System Toolbox in robotics applications.

Programming Skills

- Languages: Python, C++, MATLAB
- Frameworks: Pytorch, Tensorflow, JAX, ROS, Git, LaTeX, Unix
- Robotic Simulators: Mujoco, Pybullet, NVIDIA Isaac Gym

Technical Courses

- Robotics: Robot Control, State Estimation, and System Identification
- Machine Learning: Numerical Optimization, Deep Learning, Reinforcement Learning

Miscellaneous

- **Ranked in top 100** among 200k candidates in the Graduate Aptitude Test in Engineering (Mechanical Engineering Division) in the year 2014. This is a highly competitive national level mathematics and technical aptitude test held by India's top tier universities for graduate studies.

- **Ranked 12th** in the Engineering Sciences in the National Eligibility Test for Junior Research Fellow in the year 2013. The test is held by the Council of Scientific and Industrial Research, India for research scholarship.

Publications

2023   **S Shetty**, T Xue, and S Calinon, "Generalized Policy Iteration using Tensor Approximation for Hybrid Control", (under review at NeurIPS-2023).

2023   T Xue*, **S Shetty***, and S Calinon, "Dynamic Programming using Tensor Approximation for Contact-rich Manipulation", Workshop on Embracing Contacts, IEEE ICRA 2023.

2022   **S Shetty**, T Lemobono, T Loew, and S Calinon, "Tensor Train for Global Optimization Problems in Robotics", arXiv preprint (under review at IJRR (journal)).

2021   **S Shetty**, J Silverio, and S Calinon, "Ergodic Exploration Using Tensor Train: Applications in Insertion Tasks", in *IEEE Transactions on Robotics*.
[Awarded Idiap's Paper of the year 2021 by Idiap Research Institute, Switzerland]

2021   L Brudermüller, T Lembono, **S Shetty**, S Calinon, "Trajectory Prediction with Compressed 3D Environment Representation using Tensor Train Decomposition", in *Proc. IEEE Intl Conf. on Advanced Robotics (ICAR)*.

2019   S Kolathaya, A Joglekar, **S Shetty**, D Dholakiya, A Sagi, S Bhattacharya, A Singla, S Bhatnagar, A Ghosal, B Amrutur, "Trajectory based deep policy search for quadrupedal walking", in *28th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*.

2019   **S Shetty,** A Ghosal, "Trajectory Tracking and Control of Car-Like Robots", in *Machines, Mechanism and Robotics, Lecture Notes in Mechanical Engineering. Springer, Singapore*.