Mishal Assif P K | Resume

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EDUCATION

University of Illinois Urbana-Champaign — **Urbana-Champaign, USA**
Ph.D in Electrical Engineering, CPI: 4.00/4.00 — *Present*

Indian Institute of Technology Bombay — **Bombay, India**
B.Tech + M.Tech in Mechanical Engineering, CPI: 8.63/10.00 — *August 2019*

RESEARCH

Research Interests: Theory and applications of Optimization, Learning and Control.

Publications

Scenario approach for minmax optimization in the nonconvex setting
M. Assif P K, *D. Chatterjee, R. Banavar* *2020*
SIAM Journal on Optimization, Vol.30(2), 2020. [doi], [arXiv preprint]

A simple proof of the discrete time geometric Pontryagin maximum principle
M. Assif P K, *D. Chatterjee, R. Banavar* *2020*
Automatica, Vol.114, 2020. [doi], [arXiv preprint]

Measure of quality of finite-dimensional linear systems: A frame-theoretic view
M. Assif P K, *M. R. Sheriff, D. Chatterjee* *2019*
Submitted. [arXiv preprint]

Variational collision avoidance on Riemannian manifolds
M. Assif, *R. Banavar, A. M. Bloch, M. Camarinha, L. Colombo* *2018*
Proceedings of the IEEE Conference on Decision and Control, 2018. [doi], [arXiv preprint]

TECHNICAL EXPERIENCE

Projects

Autonomous Underwater Vehicle Team (AUV-IITB)
Software developer *2015 - 2016*

- Part of a team in the development of algorithms to enable an AUV to autonomously localise itself and perform realistic missions based on feedback from visual, inertial and acoustic sensors.
- Secured second place at the International AUVSI Robosub competition 2016.
- Maintained a very modular software stack written in C++ and Python, using ROS for integration of various subsystems.
- Implemented a finite state machine for planning the execution flow of the AUV.
- Developed and tuned a PID controller for controlling the 5 degrees of freedom of the AUV.
- Created various ancilliary tools such as drivers for sensors, simulators and runtime debug interfaces.

Software Skills

Programming Languages: C++, Python, Matlab. **Other tools:** LaTeX, ROS, Gazebo, OpenCV.

TEACHING ASSISTANTSHIPS

- ME 311 Microprocessors and Automatic Control Lab, Spring 2019, IITB.
- ME 310 Microprocessors and Automatic Control, Fall 2018, IITB.
- SC 624 Differential Geometric Methods in Control, Spring 2018, IITB.