

SOURISH GHOSH

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EDUCATION

Carnegie Mellon University	August, 2019 - May, 2022 <i>Department:</i> Robotics Institute	M.S. in Robotics (MSR) <i>GPA:</i> 4.11/4.0
Indian Institute of Technology (IIT), Kharagpur	July, 2014 - April, 2019 <i>Department:</i> Mathematics	Integrated M.Sc. (B.Sc. + M.Sc.) <i>Major:</i> Mathematics and Computing <i>GPA:</i> 8.5/10

EXPERIENCE

Apple Inc. Machine Learning Engineer Boulder, CO	July, 2022 - <i>present</i>
Apple Inc. Computer Vision Intern <i>Topic:</i> 3D Object Pose Tracking with Transformers <i>Research Areas:</i> transformers, detection and tracking, temporal modeling	May, 2021 - Aug, 2021
Carnegie Mellon University MSR Student, AirLab <i>Thesis:</i> Vision-based Aircraft Detection and Tracking for Detect-and-Avoid <i>Research Areas:</i> small object detection, object tracking, deep learning, ego-motion estimation	<i>Adviser:</i> Prof. Sebastian Scherer Aug, 2019 - May, 2022
Princeton University Summer Intern, IRoM Lab <i>Topic:</i> Learning Data-Driven Dynamic Models of Task-Relevant Perceptual Features for Robot Controllers <i>Research Areas:</i> control theory, deep learning, variational autoencoders, model-predictive control	<i>Adviser:</i> Prof. Anirudha Majumdar June - Aug, 2018
NASA Jet Propulsion Laboratory Summer Intern, Group 347E <i>Topic:</i> Probabilistic Kinematic State Estimation for Motion Planning of Planetary Rovers <i>Research Areas:</i> probabilistic state estimation, risk-aware motion planning	<i>Adviser:</i> Dr. Masahiro Ono May - July, 2017
University of Massachusetts Amherst Summer Intern, AMRL <i>Topic:</i> Joint Perception and Planning for Efficient Obstacle Avoidance using Stereo Vision <i>Research Areas:</i> obstacle avoidance, stereo vision, motion planning	<i>Adviser:</i> Prof. Joydeep Biswas May - Aug, 2016
Aerial Robotics Lab, Kharagpur Software Team Member <i>Topic:</i> Building unmanned emergency aerial vehicles to drop medical supplies in less accessible regions of rural India. <i>Research Areas:</i> localization and mapping, motion planning, control theory	<i>Adviser:</i> Prof. Somesh Kumar Feb, 2017 - Apr, 2019

SELECTED PUBLICATIONS

- [5] **AirTrack: Onboard Deep Learning Framework for Long-Range Aircraft Detection and Tracking**
by Sourish Ghosh, Jay Patrikar, Brady Moon, Milad Moghassem Hamidi, Sebastian Scherer
In *2023 International Conference on Robotics and Automation*. To Appear, May 2023. [\[PDF\]](#)
- [4] **MAARS: Machine learning-based Analytics for Automated Rover Systems**
by Masahiro Ono, Brandon Rothrock, ..., Sourish Ghosh, ..., Hyoshin Park
In *2020 IEEE Aerospace Conference*. Mar 2020. [\[PDF\]](#)
- [3] **Probabilistic Kinematic State Estimation for Motion Planning of Planetary Rovers**
by Sourish Ghosh, Kyohei Otsu, and Masahiro Ono
In *Intelligent Robots and Systems, IROS, 2018 IEEE/RSJ International Conference*, (Madrid, Spain). Oct 2018. [\[PDF\]](#)
- [2] **Fast Approximate Clearance Evaluation for Rovers with Articulated Suspension Systems**
by Kyohei Otsu, Guillaume Matheron, Sourish Ghosh, Olivier Toupet, and Masahiro Ono
In *Journal of Field Robotics*. July 2019. [\[PDF\]](#)
- [1] **Joint Perception And Planning For Efficient Obstacle Avoidance Using Stereo Vision**
by Sourish Ghosh and Joydeep Biswas.
In *Intelligent Robots and Systems, IROS, 2017 IEEE/RSJ International Conference*, (Vancouver, Canada). Sep 2017. [\[PDF\]](#)

SELECTED OPEN-SOURCED PROJECTS

Stereo Dense 3D Reconstruction Tool 3D reconstruction using ELAS. [CODE]	JPP C++ implementation of [1]. [CODE]	RRT Simulator Visualizing RRTs. [CODE]
PyBullet Turntable Controller Task-relevant features for MPC. [CODE]	Generating Disparity Maps Algorithms for disparity maps. [CODE]	Stereo Camera Calibration Tools [PINHOLE] [FISHEYE] [BLOG]