

# Srikanth Malla

FREMONT · CALIFORNIA · USA

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## Research Interest

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My passion is the quest for understanding and modeling visual intelligence in humans, particularly in applications involving behavior understanding, prediction, 3D scene modeling, and reasoning. The research problems that I would like to pursue include learning with limited data, generalizing concepts across different domains, and learning data representations without labels through unsupervised or weakly supervised methods. I would like to apply solutions to these problems in different domains, including intelligent mobility, 3D modeling, and robotics.

## Education

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### Worcester Polytechnic Institute

*Worcester, Massachusetts, USA*

M.SC. ROBOTICS ENGINEERING, GPA: 4.0/4.0

*Jan 2017 - Aug 2018*

- **Honda Research Institute**, San Jose, CA — *Research Internship Program Spring, Summer 2018*

### Vellore Institute of Technology

*Vellore, India*

B.TECH. IN ELECTRONICS AND INSTRUMENTATION, GPA: 8.79/10

*July 2012 - May 2016*

- **Carnegie Mellon University**, Pittsburgh, PA — *Semester Abroad Fall 2015, Spring 2016*

## Research Experience

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### Samsung Semiconductor

*San Jose, California, USA*

STAFF MACHINE LEARNING ENGINEER

*Feb 23-Present*

Working on software stack development for custom AI inference accelerators, also perform research and algorithm development for efficient AI inference. Prior to this developed and deployed full stack solution for Retrieval Augmented Generation based inference tool for internal corporate data.

### Kinetic Automation

*Mountain View, California, USA*

STAFF RESEARCH ENGINEER - MACHINE LEARNING

*Mar 22-Feb 23*

Responsible for Machine learning related tasks simulation, data creation, algorithm design, and deployment.

RESEARCH ENGINEER

*Oct 21-Feb 22*

Developing 3D Machine Vision algorithms for Autonomous Driving and Electric Vehicles maintenance.

### Honda Research Institute

*San Jose, California, USA*

RESEARCH ENGINEER

*Aug 18-Oct 21*

Worked on 3D detection using LiDAR, camera sensors and Joint 2D-3D Multi Object Tracking, action recognition, future trajectory forecast research topics. Sub-research topics include interaction modelling and important agent identification.

RESEARCH INTERN

*Jan 18-July 18*

Worked on 3D scene understanding research topics like 3D Mapping using LiDAR sensor and sensor fusion with GPS-IMU sensors

### Carnegie Mellon University

*Pittsburgh, Pennsylvania, USA*

VISITING SCHOLAR, MACHINE LEARNING DEPARTMENT

*May 17-Aug 17*

Under the supervision of Katerina Fragkiadaki, worked on developing Ego-motion estimation for UAVs with low cost sensors (Monocular Camera, IMU) using Deep Learning Techniques. IMU sensor is used to overcome the problem of less or no visual correspondences during fast motion.

RESEARCH ASSOCIATE, FIELD ROBOTICS CENTER

*Sept 15-April 16*

Under the supervision of Sebastian Scherer, for the application of Industrial inspection with UAVs, I worked on system integration, control and real-time coverage planner to optimize flight time.

# Publications

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- COPAL: Continual Pruning in Large Language Generative Models** *ICML*  
INTERNATIONAL CONFERENCE ON MACHINE LEARNING 2024  
[HTTPS://ARXIV.ORG/PDF/2405.02347](https://arxiv.org/pdf/2405.02347)  
[S Malla](#), [J H Choi](#), [C Choi](#)
- DRAMA: Joint Risk Localization and Captioning in Driving** *WACV*  
WINTER CONFERENCE ON APPLICATIONS OF COMPUTER VISION 2023  
[HTTPS://OPENACCESS.THECVF.COM/CONTENT/WACV2023/PAPERS/MALLA\\_DRAMA\\_JOINT\\_RISK\\_LOCALIZATION\\_AND\\_CAPTIONING\\_IN\\_DRIVING\\_WACV\\_2023\\_PAPER.PDF](https://openaccess.thecvf.com/content/WACV2023/papers/MALLA_DRAMA_JOINT_RISK_LOCALIZATION_AND_CAPTIONING_IN_DRIVING_WACV_2023_PAPER.PDF)  
[S Malla](#), [C Choi](#), [I Dwivedi](#), [J H Choi](#) and [J Li](#)
- NEMO: Future Object Localization Using Noisy Ego Priors** *ITSC*  
INTERNATIONAL CONFERENCE ON INTELLIGENT TRANSPORTATION SYSTEMS 2022  
[HTTPS://ARXIV.ORG/PDF/1909.08150.PDF](https://arxiv.org/pdf/1909.08150.pdf)  
[S Malla](#), [I Dwivedi](#), [B Dariush](#), [C Choi](#)
- Social-STAGE: Spatio-Temporal Multi-Modal Future Trajectory Forecast** *ICRA*  
INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION 2021  
[HTTPS://ARXIV.ORG/PDF/2011.04853.PDF](https://arxiv.org/pdf/2011.04853.pdf)  
[S Malla](#), [B Dariush](#) and [C Choi](#)
- RAIN: Reinforced hybrid attention inference network for motion forecasting** *ICCV*  
INTERNATIONAL CONFERENCE ON COMPUTER VISION 2021  
[HTTPS://ARXIV.ORG/PDF/2108.01316.PDF](https://arxiv.org/pdf/2108.01316.pdf)  
[J Li](#), [F Yang](#), [H Ma](#), [S Malla](#), [M Tomizuka](#) and [C Choi](#)
- LOKI: Long Term and Key Intentions for Trajectory Prediction** *ICCV*  
INTERNATIONAL CONFERENCE ON COMPUTER VISION 2021  
[HTTPS://ARXIV.ORG/PDF/2108.08236.PDF](https://arxiv.org/pdf/2108.08236.pdf)  
[H Girase\\*](#), [H Gang\\*](#), [S Malla](#), [J Li](#), [A Kanehara](#), [K Mangalam](#), [C Choi](#)
- Shared Cross-Modal Trajectory Prediction for Autonomous Driving** *CVPR "ORAL"*  
COMPUTER VISION AND PATTERN RECOGNITION 2021  
[HTTPS://ARXIV.ORG/PDF/2011.08436.PDF](https://arxiv.org/pdf/2011.08436.pdf)  
[C Choi](#), [J H Choi](#), [J Li](#), [S Malla](#)
- Bird's Eye View Segmentation Using Lifted 2D Semantic Features** *BMVC*  
BRITISH MACHINE VISION CONFERENCE 2021  
[HTTPS://WWW.BMVC2021-VIRTUALCONFERENCE.COM/ASSETS/PAPERS/0772.PDF](https://www.bmvc2021-virtualconference.com/assets/papers/0772.pdf)  
[I Dwivedi](#), [S Malla](#), [YT Chen](#), [B Dariush](#)
- DROGON: A Trajectory Prediction Model based on Intention-Conditioned Behavior Reasoning** *CoRL*  
CONFERENCE ON ROBOT LEARNING 2020  
[HTTPS://ARXIV.ORG/PDF/1908.00024.PDF](https://arxiv.org/pdf/1908.00024.pdf)  
[C Choi](#), [S Malla](#), [A Patil](#), [J H Choi](#)
- TITAN: Future Forecast using Action Priors** *CVPR "ORAL"*  
COMPUTER VISION AND PATTERN RECOGNITION 2020  
[HTTPS://ARXIV.ORG/PDF/2003.13886.PDF](https://arxiv.org/pdf/2003.13886.pdf)  
[S Malla](#), [B Dariush](#) and [C Choi](#)
- SSP: Single Shot Future Trajectory Prediction** *IROS*  
INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS 2020  
[HTTPS://ARXIV.ORG/PDF/2004.05846.PDF](https://arxiv.org/pdf/2004.05846.pdf)  
[I Dwivedi](#), [S Malla](#), [B Dariush](#), [C Choi](#)

**The H3D Dataset for Full-Surround 3D Multi-Object Detection and Tracking in Crowded Urban Scenes** *ICRA*  
INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION 2019  
[HTTPS://ARXIV.ORG/PDF/1903.01568.PDF](https://arxiv.org/pdf/1903.01568.pdf)  
A Patil, [S Malla](#), H Gang, Y T Chen

**Development of an intelligent pressure measuring technique for bellows using radial basis function neural network** *Elsevier*  
SENSORS AND ACTUATORS A: PHYSICAL 2016  
[HTTPS://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/ABS/PII/S0924424715302697](https://www.sciencedirect.com/science/article/abs/pii/S0924424715302697)  
V Naveen, V Komanapalli, and [S Malla](#)

**Gesture Control Interface Using Machine Learning Algorithms** *IJARCSSE*  
IJARCSSE VOLUME 5, ISSUE. 09 (2015) ISSN: 2277-128X. 2015  
[HTTPS://WWW.RESEARCHGATE.NET/PUBLICATION/291559092\\_GESTURE\\_CONTROL\\_INTERFACE\\_USING\\_MACHINE\\_LEARNING\\_ALGORITHMS](https://www.researchgate.net/publication/291559092_Gesture_Control_Interface_Using_Machine_Learning_Algorithms)  
ALGORITHMS  
H S Baweja, T Parhar, [S Malla](#)

## Papers under review

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**DEXTER: Dynamic Early-Exit for Transformer for Efficient Resources** *Neurips*  
SUBMITTED TO NEURAL INFORMATION PROCESSING SYSTEMS 2024  
S Yoo, C Choi, [S Malla](#), R Mahapatra, SJ Kim, W Lu, JH Choi

## Patents

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**System and method for future forecasting using action priors** *ACCEPTED*  
US PATENT APP. 16/913,260 2021  
[Srikanth Malla](#), Chiho Choi, Behzad Dariush

**Systems and methods for providing future object localization** *ACCEPTED*  
US PATENT APP. 16/828,343 2021  
[Srikanth Malla](#), Chiho Choi

**Composite field based single shot prediction** *ACCEPTED*  
US PATENT APP. 16/917,864 2021  
Isht Dwivedi, Chiho Choi, [Srikanth Malla](#), Behzad Dariush

**System and method for providing social-stage spatio-temporal multi-modal future forecasting** *ACCEPTED*  
US PATENT APP.17/160,747 2021  
[Srikanth Malla](#), Chiho Choi, Behzad Dariush

**System and method for completing trajectory prediction from agent-augmented environments** *ACCEPTED*  
US PATENT APP. 17/161,136 2022  
Chiho Choi, [Srikanth Malla](#), Sangjae Bae

**System and method for providing long term and key intentions for trajectory prediction** *ACCEPTED*  
US PATENT APP. 17/352,540 2022  
Harshayu Vishwajeet Girase, Haiming Gang, [Srikanth Malla](#), Jiachen Li, Akira Kanehara, Chiho Choi

**System and method for completing Joint Risk Localization and Reasoning in Driving** *FILED*  
US PATENT APP. 17/388,256 2022  
[Srikanth Malla](#)

## System and method for automated extrinsic calibration of Lidars, Cameras, Radars, and Ultrasonic Sensors on Vehicles and Robots

FILED

PROVISIONAL FILED

2022

Nikhil Naikal, Alexander Marques, Srikanth Malla

## Technical Skills

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**Programming** Python, C++, Matlab

**ML Frameworks** PyTorch, Triton (openai), TensorFlow, Keras, Text Generation Inference

**Vision Libraries** PCL, OpenCV

**Robotics Frameworks** OpenRave, , Multisim, ROS, Solid Works, MoveIt, Gazebo, MuJoCo

**Robots:** Baxter, UAVs (custom built, DJI), Kuka Youbot, Turtle Bot

**Others** Linux, Docker, Vim, IPythonNotebook, Google Colab, Git, Github, AWS S3, AWS EC2, L<sup>A</sup>T<sub>E</sub>X

## Professional Service

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2022,24	<b>ECCV</b> , European Conference on Computer Vision	Reviewer
2022-24	<b>CVPR</b> , Computer Vision and Pattern Recognition	Reviewer
2023	<b>WACV</b> , Winter Conference on Applications of Computer Vision	Reviewer
2022	<b>SNSF</b> , Swiss National Science Foundation, Grant	Reviewer
2022	<b>RAL</b> , Robotics and Automation Letters	Reviewer
2021	<b>ICCV</b> , International Conference on Computer Vision (MAIR2 Workshop)	Reviewer
2021-22	<b>ICRA</b> , International Conference on Robotics and Automation	Reviewer
2020	<b>IROS</b> , International Conference on Intelligent Robots and Systems	Reviewer
2020	<b>IJRR</b> , International Journal of Robotics Research	Reviewer
2020	<b>T-IV</b> , Transactions on Intelligent Vehicles	Reviewer

## Teaching

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### Worcester Polytechnic Institute

Tutor

ELECTRICAL AND COMPUTER ENGINEERING DESIGN, ECE 2799

Spring 2017

In Spring 2017, I was the tutor for the course ECE 2799. Half of the course is project based and I supervised the electronics projects.

Teaching Assistant

SYNERGY OF HUMAN AND ROBOTIC SYSTEMS, RBE 595

Fall 2017

In Fall 2017 I was the Teaching Assistant for the course RBE 595, which is an advanced course designed for project-based robot design. I was part of grading the students assignments and tests. And help the students with questions in the class.

## Honors and Awards

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### Ministry of Human Resource and Development, India

MERIT SCHOLARSHIP

2013, 2014

### Study Abroad Scholarship, India

VIDESHI VIDYA DEVENA, ANDHRA PRADESH STATE SPONSORED SCHOLARSHIP

2017

## Media Coverage

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## **LOKI: An intention data set to train models for pedestrian and vehicle trajectory prediction**

[HTTPS://TECHXPLORE.COM/NEWS/2021-09-LOKI-INTENTION-DATASET-PEDESTRIAN-VEHICLE.HTML](https://techxplore.com/news/2021-09-loki-intention-dataset-pedestrian-vehicle.html)

*Tech Xplore*

*September 9, 2021*