

# Srikanth Malla

SUNNYVALE · CALIFORNIA · USA

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## Research Interest

My passion is the quest for understanding and modeling visual intelligence in humans, particularly in applications involving behavior understanding, navigation, 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 and robotics.

## Education

### 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

### Kinetic Automation

Palo Alto, California, USA

RESEARCH ENGINEER

Oct 2021 -

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

Responsible for simulation, data creation, algorithm design, and deployment.

### Honda Research Institute

San Jose, California, USA

RESEARCH ENGINEER

Jan 2018-Oct 2021

Worked on 3D scene understanding research topics like 3D Mapping using LiDAR sensor, sensor fusion with GPS-IMU sensors, 3D detection, joint 2D-3D multiobject tracking, action recognition, future trajectory forecast.

### 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.

Pittsburgh, Pennsylvania, USA

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

### 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

<b>RAIN: Reinforced hybrid attention inference network for motion forecasting</b>	<i>ICCV</i>
INTERNATIONAL CONFERENCE ON COMPUTER VISION	2021
<a href="https://arxiv.org/pdf/2108.01316.pdf">HTTPS://ARXIV.ORG/PDF/2108.01316.PDF</a>	
J Li, F Yang, H Ma, <a href="#">S Malla</a> , M Tomizuka and C Choi	
<b>LOKI: Long Term and Key Intentions for Trajectory Prediction</b>	<i>ICCV</i>
INTERNATIONAL CONFERENCE ON COMPUTER VISION	2021
<a href="https://arxiv.org/pdf/2108.08236.pdf">HTTPS://ARXIV.ORG/PDF/2108.08236.PDF</a>	
H Girase*, H Gang*, <a href="#">S Malla</a> , J Li, A Kanehara, K Mangalam, C Choi	
<b>Shared Cross-Modal Trajectory Prediction for Autonomous Driving</b>	<i>CVPR "ORAL"</i>
COMPUTER VISION AND PATTERN RECOGNITION	2021
<a href="https://arxiv.org/pdf/2011.08436.pdf">HTTPS://ARXIV.ORG/PDF/2011.08436.PDF</a>	
C Choi, J H Choi, J Li, <a href="#">S Malla</a>	
<b>Bird's Eye View Segmentation Using Lifted 2D Semantic Features</b>	<i>BMVC</i>
BRITISH MACHINE VISION CONFERENCE	2021
TO APPEAR	
I Dwivedi, <a href="#">S Malla</a> , YT Chen, B Dariush	
<b>DROGON: A Trajectory Prediction Model based on Intention-Conditioned Behavior Reasoning</b>	<i>CoRL</i>
CONFERENCE ON ROBOT LEARNING	2020
<a href="https://arxiv.org/pdf/1908.00024.pdf">HTTPS://ARXIV.ORG/PDF/1908.00024.PDF</a>	
C Choi, <a href="#">S Malla</a> , A Patil, J H Choi	
<b>TITAN: Future Forecast using Action Priors</b>	<i>CVPR "ORAL"</i>
COMPUTER VISION AND PATTERN RECOGNITION	2020
<a href="https://arxiv.org/pdf/2003.13886.pdf">HTTPS://ARXIV.ORG/PDF/2003.13886.PDF</a>	
<a href="#">S Malla</a> , B Dariush and C Choi	
<b>SSP: Single Shot Future Trajectory Prediction</b>	<i>IROS</i>
INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS	2020
<a href="https://arxiv.org/pdf/2004.05846.pdf">HTTPS://ARXIV.ORG/PDF/2004.05846.PDF</a>	
I Dwivedi, <a href="#">S Malla</a> , B Dariush, C Choi	
<b>The H3D Dataset for Full-Surround 3D Multi-Object Detection and Tracking in Crowded Urban Scenes</b>	<i>ICRA</i>
INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION	2019
<a href="https://arxiv.org/pdf/1903.01568.pdf">HTTPS://ARXIV.ORG/PDF/1903.01568.PDF</a>	
A Patil, <a href="#">S Malla</a> , H Gang, Y T Chen	
<b>Development of an intelligent pressure measuring technique for bellows using radial basis function neural network</b>	<i>Elsevier</i>
SENSORS AND ACTUATORS A: PHYSICAL	2016
<a href="https://www.sciencedirect.com/science/article/abs/pii/S0924424715302697">HTTPS://WWW.SCIENCEDIRECT.COM/SCIENCE/ARTICLE/ABS/PII/S0924424715302697</a>	
V Naveen, V Komanapalli, and <a href="#">S Malla</a>	
<b>Gesture Control Interface Using Machine Learning Algorithms</b>	<i>IJARCSE</i>
IJARCSE VOLUME 5, ISSUE. 09 (2015) ISSN: 2277-128X.	2015
<a href="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_</a>	
<a href="#">ALGORITHMS</a>	
H S Baweja, T Parhar, <a href="#">S Malla</a>	
<b>NEMO: Future Object Localization Using Noisy Ego Priors</b>	<i>Arxiv</i>
	2019
<a href="https://arxiv.org/pdf/1909.08150.pdf">HTTPS://ARXIV.ORG/PDF/1909.08150.PDF</a>	
<a href="#">S Malla</a> , I Dwivedi, B Dariush, C Choi	

## Papers under review

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### **DRAMA: Joint Risk Localization and Language Reasoning in Driving**

CVPR

SUBMITTED FOR COMPUTER VISION AND PATTERN RECOGNITION

2022

[S Malla](#), J H Choi, C Choi, I Dwivedi, and J Li

### **Trajectory Prediction by Encoding Multi-Scale Human Interactions from Agent-Augmented Environment**

CVPR

SUBMITTED FOR COMPUTER VISION AND PATTERN RECOGNITION

2022

C Choi\*, D Lee\*, [S Malla](#), S Bae, and J Kim

## 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 completing Joint Risk Localization and Reasoning in Driving**

FILED

US PATENT APP. 17/388256

2021

[Srikanth Malla](#)

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

FILED

PROVISIONAL FILED

2021

Nikhil Naikal, Alexander Marques, [Srikanth Malla](#)

### **SYSTEM AND METHOD FOR PROVIDING SOCIAL-STAGE SPATIO-TEMPORAL MULTI-MODAL FUTURE FORECASTING**

FILED

US PATENT APP. 17/160747

2021

[Srikanth Malla](#), Chiho Choi, Behzad Dariush

### **SYSTEM AND METHOD FOR COMPLETING TRAJECTORY PREDICTION FROM AGENT-AUGMENTED ENVIRONMENTS**

FILED

US PATENT APP. 17/161136

2021

Chiho Choi, [Srikanth Malla](#), Sangjae Bae

### **SYSTEM AND METHOD FOR PROVIDING LONG TERM AND KEY INTENTIONS FOR TRAJECTORY PREDICTION**

FILED

US PATENT APP. 17/352540

2021

Harshayu Vishwajeet Girase, Haiming Gang, [Srikanth Malla](#), Jiachen Li, Akira Kanehara, Chiho Choi

## Technical Skills

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

**ML Frameworks** PyTorch, TensorFlow, Keras, CUDA

**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, IPython Notebook, Google Colab, Git, Github, AWS S3, AWS EC2,  $\LaTeX$

## Editorial Service

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2022	<b>CVPR</b> , Computer Vision and Pattern Recognition	<i>Reviewer</i>
2022	<b>RAL</b> , Robotics and Automation Letters	<i>Reviewer</i>
2021	<b>ICCV</b> , International Conference on Computer Vision (MAIR2 Workshop)	<i>Reviewer</i>
2021-22	<b>ICRA</b> , International Conference on Robotics and Automation	<i>Reviewer</i>
2020	<b>IROS</b> , International Conference on Intelligent Robots and Systems	<i>Reviewer</i>
2020	<b>IJRR</b> , International Journal of Robotics Research	<i>Reviewer</i>
2020	<b>T-IV</b> , Transactions on Intelligent Vehicles	<i>Reviewer</i>

## 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.