

# Srikanth Malla

FREMONT · 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, 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

### 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

### Samsung Semiconductor

San Jose, California, USA

STAFF MACHINE LEARNING ENGINEER

Feb 23-Present

Working closely with teams that develop AI accelerators, also perform research and algorithm development for efficient AI inference. Develop and deploy full stack solutions for Retrieval Augmented Generation based inference tool for internal productivity tools.

### 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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<b>COPAL: Continual Pruning in Large Language Generative Models</b> ACCEPTED TO INTERNATIONAL CONFERENCE ON MACHINE LEARNING <a href="https://arxiv.org/pdf/2405.02347">HTTPS://ARXIV.ORG/PDF/2405.02347</a> <a href="#">S Malla</a> , J H Choi, C Choi	<i>ICML</i> 2024
<b>DRAMA: Joint Risk Localization and Captioning in Driving</b> WINTER CONFERENCE ON APPLICATIONS OF COMPUTER VISION <a href="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</a> <a href="#">S Malla</a> , C Choi, I Dwivedi, J H Choi and J Li	<i>WACV</i> 2023
<b>NEMO: Future Object Localization Using Noisy Ego Priors</b> INTERNATIONAL CONFERENCE ON INTELLIGENT TRANSPORTATION SYSTEMS <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	<i>ITSC</i> 2022
<b>Social-STAGE: Spatio-Temporal Multi-Modal Future Trajectory Forecast</b> INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION <a href="https://arxiv.org/pdf/2011.04853.pdf">HTTPS://ARXIV.ORG/PDF/2011.04853.PDF</a> <a href="#">S Malla</a> , B Dariush and C Choi	<i>ICRA</i> 2021
<b>RAIN: Reinforced hybrid attention inference network for motion forecasting</b> INTERNATIONAL CONFERENCE ON COMPUTER VISION <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	<i>ICCV</i> 2021
<b>LOKI: Long Term and Key Intentions for Trajectory Prediction</b> INTERNATIONAL CONFERENCE ON COMPUTER VISION <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	<i>ICCV</i> 2021
<b>Shared Cross-Modal Trajectory Prediction for Autonomous Driving</b> COMPUTER VISION AND PATTERN RECOGNITION <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>	<i>CVPR "ORAL"</i> 2021
<b>Bird's Eye View Segmentation Using Lifted 2D Semantic Features</b> BRITISH MACHINE VISION CONFERENCE <a href="https://www.bmvc2021-virtualconference.com/assets/papers/0772.pdf">HTTPS://WWW.BMVC2021-VIRTUALCONFERENCE.COM/ASSETS/PAPERS/0772.PDF</a> I Dwivedi, <a href="#">S Malla</a> , YT Chen, B Dariush	<i>BMVC</i> 2021
<b>DROGON: A Trajectory Prediction Model based on Intention-Conditioned Behavior Reasoning</b> CONFERENCE ON ROBOT LEARNING <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	<i>CoRL</i> 2020
<b>TITAN: Future Forecast using Action Priors</b> COMPUTER VISION AND PATTERN RECOGNITION <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	<i>CVPR "ORAL"</i> 2020
<b>SSP: Single Shot Future Trajectory Prediction</b> INTERNATIONAL CONFERENCE ON INTELLIGENT ROBOTS AND SYSTEMS <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	<i>IROS</i> 2020

## **The H3D Dataset for Full-Surround 3D Multi-Object Detection and Tracking in Crowded Urban Scenes**

INTERNATIONAL CONFERENCE ON ROBOTICS AND AUTOMATION

[HTTPS://ARXIV.ORG/PDF/1903.01568.PDF](https://arxiv.org/pdf/1903.01568.pdf)

A Patil, [S Malla](#), H Gang, Y T Chen

ICRA

2019

## **Development of an intelligent pressure measuring technique for bellows using radial basis function neural network**

SENSORS AND ACTUATORS A: PHYSICAL

[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](#)

Elsevier

2016

## **Gesture Control Interface Using Machine Learning Algorithms**

IJARCSE VOLUME 5, ISSUE. 09 (2015) ISSN: 2277-128X.

[HTTPS://WWW.RESEARCHGATE.NET/PUBLICATION/291559092\\_GESTURE\\_CONTROL\\_INTERFACE\\_USING\\_MACHINE\\_LEARNING\\_](https://www.researchgate.net/publication/291559092_Gesture_Control_Interface_Using_Machine_Learning_Algorithms)

ALGORITHMS

H S Baweja, T Parhar, [S Malla](#)

IJARCSE

2015

## **Papers under review**

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### **DEXTER: Dynamic Early-Exit for Transformer for Efficient Resources**

SUBMITTED TO NEURAL INFORMATION PROCESSING SYSTEMS

Neurips

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**

US PATENT APP. 16/913,260

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

ACCEPTED

2021

### **Systems and methods for providing future object localization**

US PATENT APP. 16/828,343

[Srikanth Malla](#), Chiho Choi

ACCEPTED

2021

### **Composite field based single shot prediction**

US PATENT APP. 16/917,864

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

ACCEPTED

2021

### **System and method for providing social-stage spatio-temporal multi-modal future forecasting**

US PATENT APP.17/160,747

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

ACCEPTED

2021

### **System and method for completing trajectory prediction from agent-augmented environments**

US PATENT APP. 17/161,136

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

ACCEPTED

2022

### **System and method for providing long term and key intentions for trajectory prediction**

US PATENT APP. 17/352,540

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

ACCEPTED

2022

### **System and method for completing Joint Risk Localization and Reasoning in Driving**

US PATENT APP. 17/388,256

[Srikanth Malla](#)

FILED

2022

## 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, TensorFlow, Keras

**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,  $\text{\LaTeX}$

## 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*