

# VISHNU SASHANK DORBALA

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## EDUCATION

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**University of Maryland, College Park**  
Doctor of Philosophy (PhD), Computer Science

*July 2021 - Present*

**University of Maryland, College Park**  
Masters of Engineering, Robotics

*July 2019 - May 2021*

## RESEARCH INTERESTS

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**Embodied AI, Visual-Language Navigation, Human-AI Interaction Systems, Social Robotics**

## WORK EXPERIENCE

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**GAMMA Lab, University of Maryland**

January 2020 - Present

*Advised by Prof. Dinesh Manocha*

### ***Embodied AI in Unseen Environments***

- Conducting research to capture *human intuition* in performing Embodied AI tasks in unseen environments. Utilizing large-language models (LLMs) to perform *Visual-Language Navigation (VLN)*.

### ***Social Robot Navigation in Human-Centric Environments***

- Conceptualized and developed a novel *Reinforcement Learning* based robot navigation scheme, that utilizes ***affective cues*** to gauge *trust* from human interactions (Published at ICRA, 2021).
- Worked on *Proxemo*, a Deep Learning framework for classifying human *emotions* from videos of them *walking*. Used this to perform **socially-aware navigation** (Published at IROS, 2020).

**Amazon Alexa AI**

May 2022 - Sept 2022

*Applied Scientist Intern under Prof. Gaurav Sukhatme and Robinson Puramuthu*

### ***CLIP-Nav: Using CLIP for Zero-Shot Visual Language Navigation***

- Tackled a challenging **language-guided navigation** problem called REVERIE. Our results show improved generalizability over dominant supervised learning approaches, and established a **zero-shot baseline**. (Currently under review at the CoRL LangRob Workshop, 2022.)

**Nokia Bell Labs**

June 2020 - December 2020

*Robotics Research Intern/Co-op*

### ***Robust Navigation on an Indoor Robot***

- Implemented indoor **Visual SLAM** on a Loomo robot, in a complex office environment.

**Center for Visual Information Technology, IIIT, Hyderabad**

Sept 2017 - May 2019

*Research Fellow under Prof. C.V. Jawahar*

### ***Visual Navigation for an Assistive Robot***

- Worked on developing SARA, an assistive **robot wheelchair** platform, capable of interacting with people.
- Performed **autonomous corridor following** on SARA via **Visual Servoing** (Published at IROS, 2019).

## SELECTED PUBLICATIONS

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- V. S. Dorbala, et.al, “*CLIP-Nav: Using CLIP for Zero-Shot Visual-Language Navigation*” Under Review at Conference on Robot Learning (**CoRL**), 2022
- V. S. Dorbala, et.al, “*Can a Robot Trust You? A DRL-Based Approach to Trust-Driven Human-Guided Navigation*” IEEE Int. Conf. on Robotics and Automation (**ICRA**), 2021 ([Link to Paper](#), [Video](#))
- V. S. Dorbala, et.al., “*A Deep Learning Approach for Robust Corridor Following*” IEEE/RSJ Int. Conf. on Intelligent Robots and Systems (**IROS**), 2019 ([Link to Paper](#), [Video](#))

## ACHIEVEMENTS

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- Co-Chaired at a conference session on Human-Robot Interaction: Robot Navigation at ICRA 2021.
- Was a peer reviewer for ICRA 2019-2022 and IROS 2018-2021.