

Omkar Patil

CS PhD @ ASU



About



Tempe, United States



opatil3@asu.edu



omkarpatil18.github.io/ [↗](#)



in/omkar-patil-957958134 [↗](#)

Robotics

Robot Learning
Generative Modeling
Compositional Learning

Natural Language Processing

Human-robot Interaction
Robustness

Summary

My aim is to add value to society by doing impactful research and innovation. I have a strong background in Machine Learning and Robotics from my Master's degree at IIT Madras. After graduation, I gained valuable work experience in NLP research at Wells Fargo. Currently, I have joined the PhD program at ASU and will be working in Dr. Nakul Gopalan's lab at ASU on robot learning.

Publications

Compositional Few-shot Learning of Motions [↗](#) 10/2024

Compositional Learning Workshop @ NeurIPS 2024 | Omkar Patil, Nakul Gopalan

A novel compositional approach called DSE- Diffusion Score Equilibrium that enables few-shot learning for novel skills by utilizing a combination of base policy priors is presented.

Hardware-Software Co-Design for Path Planning by Drones 10/2024

IROS 2024 | Ayushi Dube, Omkar Patil, Gian Singh, Nakul Gopalan, and Sarma Vrudhula

This work consists of designing a hardware-software co-design, MT+, for adapting the Mikami-Tabuchi (MT) algorithm for on-board path planning by drones in a 3D environment.

Learning Temporally Composable Task Segmentations with Language 10/2024

IROS 2024 | Divyanshu Raj, Omkar Patil, Weiwei Gu, Chitta Baral and Nakul Gopalan

We present an approach to identify sub-tasks within a demonstrated robot trajectory with the supervision provided by language instructions.

Understanding metrics for paraphrasing [↗](#) 05/2022

Arxiv | Omkar Patil, Rahul Singh, Tarun Joshi

We propose a novel metric ROUGE-P to measure the quality of paraphrases along the dimensions of adequacy, novelty and fluency.

Document automation architectures and technologies: A survey [↗](#) 09/2021

Arxiv | Mohammad Ahmadi Achachlouei, Omkar Patil, Tarun Joshi, Vijayan N Nair

This paper surveys the current state of the art in document automation in light of recent advances in artificial intelligence and deep neural networks.

Education

Arizona State University 08/2023 - 05/2028

Doctor of Philosophy Computer Science
3.9

- Planning/Learning Methods for AI
- Knowledge Representation and Reasoning

Indian Institute of Technology, Madras 07/2018 - 05/2020

Master of Technology Robotics and AI
8.22

- Deep Learning
- Reinforcement Learning

Indian Institute of Technology, Madras 12/2015 - 12/2019

Bachelor of Technology Mechanical Engineering
8.22

- Computational Heat & Fluid Flow
- Design of Machine Elements

Experience

Arizona State University [↗](#)

08/2023 - Present

Graduate Research Assistant

Research assistant in Dr. Nakul Gopalan's lab at Arizona State University.

Wells Fargo

08/2020 - 07/2023

Senior Quantitative Analytics Specialist

Member of the Artificial Intelligence and Automation team within Corporate Model Risk.

- Researched and implemented prompt-tuning on language models for generating different kinds of paraphrases for downstream applications such as robustness testing.
- Collaborated with other researchers within the team to develop methodologies for evaluating model weaknesses with a special focus on text classification models.

Quantitative Analytics Specialist

Member of the Artificial Intelligence and Automation team within Corporate Model Risk.

- Explored text generation for the task of paraphrasing and developed a new metric to evaluate the quality of paraphrases.
- Surveyed various document automation frameworks present in literature.
- Contributed significantly to the internal code library and made several presentations on research projects, across the group

Eaton

05/2018 - 07/2018

Research Intern

Survey research on amorphous metals in the Additive Manufacturing team.

- Performed extensive literature review to put forward Eaton products that could benefit from amorphous metals.
- Enhanced cold spray simulation capability by creating a Python script for the fluid dynamics part of the simulation

Institute WebOps and MobOps

04/2017 - 05/2018

Head

Lead of the official mobile development team of IIT Madras.

- Led a team of 9 students for the development of the 'Students App', managing a budget of ~INR 3L.
- Increased the number of active users by ~160%, to 6500+ students, with 12000+ downloads in total.
- Developed a sophisticated Java front-end and PHP back-end to build a secure and useful application on Android.
- Introduced innovative features such as a complaints portal, institute-attuned timetable, and calendar

Volunteer

Madhuvan Foundation [↗](#)

11/2019 - 12/2019

Intern

Non-governmental organization for the welfare of underprivileged children.

- Quickly ramped up with the current operations of reselling scrap newspaper and facilitating education for the needy with the obtained proceeds
- Streamlined the scrap collection under the 'Pasti Ki Pathshala' project by creating a database of participants willing to donate scrap newspaper
- Organized a collection drive at a local school for 800+ students to promote the idea of social welfare