

Manav Singhal

manavsinghal157.github.io

Email : manavsinghal157@gmail.com

Github : [manavsinghal157](https://github.com/manavsinghal157)

EDUCATION

National Institute of Technology Karnataka

B.Tech in Electrical and Electronics (Minor in Computer Science).

Surathkal, India

July 2018 – July 2022

- GPA: **9.03/10.00**

INDUSTRY EXPERIENCE

Maxim AI

August 2024 - Present

ML Engineer

- Benchmarking and improving LLM-based evaluators for evaluating agentic AI workflows in an early-stage startup.
- Building a synthetic test data generation feature for the customers of the Maxim platform.

Microsoft Research India

July 2022 - July 2024

Research Fellow. Mentors: [Nagarajan Natarajan](#) and [Aditya Kanade](#)

- Developed benchmarks and evaluation methodologies for code generation with Large Language Models (LLMs), focusing on evaluation of non-functional requirements of the generated code.
- Extensively evaluated twenty-two code LMs to discover they falter on our benchmark and don't sufficiently comprehend code they can otherwise edit. [\[Code\]](#)

Research Fellow. Mentors: [Nishanth Chandran](#), [Divya Gupta](#) and [Dimitrios Dimitriadis](#)

- Led efforts to enhance the accuracy of global model trained in a challenging one-shot federated learning setup with clients trained on non-IID data.
- Achieved over 5% increase in accuracy compared to baselines in our most non-IID setting by combining client logits and encoder output from a pre-trained autoencoder.

Microsoft Research NYC

May 2021 - Sept 2021

Independent Research Developer. Mentors: [Pavithra Srinath](#) and [Olga Vrousseau](#)

- Achieved competitive performance between the public model without access to the user feature mapping and the private model with access in our analysis of our privacy-preserving feature in the [VowpalWabbit](#) library.
- Implemented two different approaches for the feature and compared the existing benchmarks performances of each, released in [VW-9.0.0](#). [\[Slides\]](#), [\[Code\]](#), [\[Wiki\]](#)

PUBLICATIONS

NoFunEval: Funny How Code LMs Falter on Requirements Beyond Functional Correctness

Manav Singhal, Tushar Agarwal, Abhijeet Awasthi, Nagarajan Natarajan, Aditya Kanade

*Conference on Language Modeling, **COLM 2024**.*

Fed-Encoder: A One-Shot Federated Learning Solution

Manav Singhal, Nagarajan Natarajan, Dimitrios Dimitriadis, Divya Gupta, Nishanth Chandran

Pre-Print.

Explanations in Multi-Agent Search and Rescue Task

Manav Singhal, Vidhi Jain, Dana Hughes, and Katia Sycara

RISS Working Papers Journal 2021.

TECHNICAL SKILLS

Programming Languages: Python, C++, Java

Relevant Tools/Frameworks: LiteLLM, DSPy, HuggingFace, Pytorch, Pandas, Numpy, Tensorflow, OpenAI, vLLM, Git

AWARDS AND HONORS

- Selected for the [Robotics Institute Summer Scholar \(RISS\) Program 2021](#) to pursue a summer research internship at the **Robotics Institute, Carnegie Mellon University**. Among 58 selected globally out of 700+ applicants.
- Selected for the [Reinforcement Learning Open Source Fest \(RLOSF\) 2021](#) to pursue a summer research project with **Microsoft Research, New York City**. Among 10 selected globally out of 200+ applicants.
- Awarded the [Summer Research Fellowship \(SRFP\) 2020](#) conducted by the **Indian Academy of Sciences (IAS)** to pursue a summer research internship at **IISc Bangalore**. Among top 5% selected out of 25,000+ applicants.
- Recipient of the [OP Jindal Engineering Scholarship \(OPJEMS\) 2019](#). Among 80 selected out of 1100+ applicants.
- Ranked **3rd** amongst 75+ participants in [Dishathon](#), a hackathon organized by **DishTV**.

RESEARCH EXPERIENCE

Explanations in Multi-Agent Search and Rescue Task June 2021 - Dec 2021
CMU Robotic Institute Summer Scholar. Mentors: Prof. Katia Sycara and Dana Hughes

- Experimented with an approach using multiple-observer model, to interpret the decisions taken by agents through queries to a belief state, in a simulated multi-agent search and rescue task in Minecraft.

Train Scheduling using Reinforcement Learning May 2020 - July 2020
IAS Summer Research Fellow. Mentor: Prof. Shalabh Bhatnagar

- Worked on evaluating single-agent approaches, such as Dueling Deep Q Networks and Proximal Policy Optimization on the multi-agent Flatland environment for efficient train scheduling.

Using Class Activation Maps for Textual Entailment May 2019 - June 2019
Research Intern. Mentor: Prof. Niloy Ganguly

- Studied Class Activation Maps in NLP to understand the words affecting the textual entailment prediction being made by the CNN model on the SNLI dataset.

MENTORSHIP, LEADERSHIP AND EXTRA-CURRICULAR

- Member of the [RISS 2021 Working Papers Journal](#) team curating the journal.
- **Secretary** of Web Club NITK: Coordinated 20+ computer science events organized for a group of 70+ students.
- **Executive Member** of IEEE NITK: Mentored 15+ students in CS summer program and recorded a [podcast](#) of my research journey to guide junior undergraduate students.
- **Finalist** at the [Speak For India 2019](#) edition.
- **Finalist** at the Team India selections for [World School Debating Championship 2017](#).