

Vaibhav Balloli

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EDUCATION

University of Michigan, Ann Arbor

2023 - Present

Ph.D. in Computer Science and Engineering

Advisor: [Prof. Elizabeth Bondi-Kelly](#)

GPA: 4.04/4.0. Courses: Reinforcement Learning Theory, NLP, HCI, AI, Causality and ML, Advanced Data Mining

Research: Design human-centered, safe, multi-agent AI systems and HCI tools that empower human expertise to address societal challenges

Current Project: Understanding capabilities and limits of LLM systems to cater to aid clinicians and patients for maternal health information access.

BITS Pilani, Hyderabad Campus

2016 - 2020

B.E in Electronics and Communication Engineering

RESEARCH EXPERIENCE

Microsoft Research India

June 2022 - June 2023

Research Fellow

Advisors: [Dr. Akshay Nambi](#) & [Tanuja Ganu](#)

Topics: Reinforcement Learning, Integer Linear Programming, Large-scale Optimization, Large Language Models.

Projects: [Vasudha](#), [VeLLM](#): [VeLLM Press](#) - [Satya Nadella](#), [Times of India](#)

Impact: VeLLM is currently being deployed in schools across India

Microsoft Research India

June 2021 - June 2022

SCAI Research Fellow

Advisors: [Dr. Akshay Nambi](#), [Tanuja Ganu](#) & [Dr. Venkat Padmanabhan](#)

Topics: Computer Vision, Contextual Bandits, Visual Localization, End-to-End systems

Projects: [HAMS](#): [HAMS Press](#) - [Punjab News Express](#)

Impact: HAMS is successfully deployed across India

PUBLICATIONS

4. **Bridging the Gap: Dynamic Learning Strategies for Improving Multilingual Performance in LLMs**
Somnath Kumar*, **Vaibhav Balloli***, Mercy Ranjit, Kabir Ahuja, Tanuja Ganu, Sunayana Sitaram, Kalika Bali, Akshay Nambi
Topics: Large Language Models, Multilingual Evaluation, Human Feedback.
Oral presentation, COLING 2025 | [arXiv](#)
3. **Are They the Same Picture? Adapting Concept Bottleneck Models for Human-AI Collaboration in Image Retrieval**
Vaibhav Balloli, Sara Beery, Elizabeth Bondi-Kelly
Topics: human-AI Collaboration, Image Retrieval, Interpretability, Wildlife Conservation
IJCAI'24 Human-Centered AI Track, CV4Animals Workshop@CVPR'24 | [Code](#) | [Project](#) | [<5% Acceptance Rate](#)
2. **Chanakya: Learning Tradeoffs for Adaptive Streaming Perception via Contextual Bandits**
Anurag Ghosh, **Vaibhav Balloli**, Akshay Nambi, Aditya Singh, Tanuja Ganu.
Topics: Object detection and tracking, Computer Vision, Multi-arm bandits
NeurIPS'23 | [Talk](#) | [Code](#)
1. **Video Streaming using Scalable Video Coding over Opportunistic Networks**
Abhishek Thakur, **Vaibhav Balloli**, Arnav Dhamija.
Topics: Delay-Tolerant Networks, Video Compression
WiSPNET'19 | [Code](#)

SELECT AWARDS AND HONORS

- Awarded Weinberg Institute Travel Grant to attend CVPR'24 - \$1000 2024
- 2nd Place in the Google x MHacks Hackathon - \$1500 Press: Mentioned by [labs.google](#) 2024
- Press: [VeLLM](#) mentioned by [Satya Nadella](#) and featured in [Times Of India](#), [FirstPost](#) 2024
- Awarded Rackham Travel Grant to attend and present at NeurIPS'23 2023
- Selected for the [Harvard/MIT - HAIST/MAIA Intro Fellowship](#) on AI Safety 2023
- Press: HAMS Automated License Testing featured in [Punjab News Express](#) 2022
- Winner of [Microsoft Global Hackathon, 2021](#)(Future Of Edge Computing Track) 2021
- **SmartCampus** successfully managed **₹25 million** in transactions 2020
- Talk at WiSPNET'19 presenting our paper Video Streaming using Scalable Video Coding over Opportunistic Networks(VECTORS) 2019


SERVICE

- Conference Reviewer: IJCAI'25, ICML'25, AAMAS'25, ICLR'25 and NeurIPS'24.
- Workshop Reviewer: CV4Animals@CVPR'24, CompSust@ NeurIPS'23.

PROFESSIONAL RESPONSIBILITIES

- Editor for Michigan AI Blog
- Selected as Teaching Assistant for ClimateChange.ai Summer School 2023
- **Head of SmartCampus** at BITS Pilani Hyderabad Campus
- **Member of Automation and Robotics Club** at BITS Pilani Hyderabad Campus. Organized microcontroller workshop for a group of 100 students
- **Volunteer** at ClimateChange.ai
- **Founder and Organizer** of ML Reading Group at BITS Pilani Hyderabad Campus
- **Mentorship**
 - Jonathan Samuel (Research Intern @ MSR -> SDE Gojek)
 - Isha Singh (Research Intern @ MSR)

SOFTWARE

1.  [autogen-openaiext-client](#) Autogen community project for working with external LLMs through OpenAI API.
2. **EnCortex - Stochastic Optimization for Renewable Energy sources.**
Microsoft Research India
Reinforcement Learning(PyTorch, Stable-Baselines3) | Stochastic Optimization | MLOps on Azure.
RL and Stochastic optimization algorithms running large-scale optimizations.
3. **[Automated License Testing - Microsoft Research India.](#)**
Microsoft Research India
Visual SLAM, Object Detection, and Trajectory analysis.