Vaibhav Balloli

✉ balloli.vb@gmail.com | ⌗ vballoli | 🔗 vaibhavballoli | 🌐 vballoli.github.io | 🎓 Google Scholar

Research Focus

AI researcher focusing on reliability, safety, experience, and usability of AI systems in human-AI in social good applications. My research has always been deployed to alleviate specific societal challenges. My current work focuses on improving conversational (human-LLM) and agentic capabilities for maternal health.

Research Topics: LLMs + {RL, evaluations, safety}, human-AI collaboration, Representation Learning

Education

University of Michigan, Ann Arbor *2023 - Present*
Ph.D. Candidate, M.S. in Computer Science and Engineering
Advisor: Prof. Elizabeth Bondi-Kelly
Courses: Reinforcement Learning Theory, Causality and ML, NLP, HCI, AI, Advanced Data Mining

BITS Pilani, Hyderabad Campus *2016 - 2020*
B.E in Electronics and Communication Engineering

Research Experience

Microsoft Research Redmond, AI Frontiers *May 2025 - Aug 2025*
Research Intern
Advisors: Hussein Mozannar, Adam Fourney, Gagan Bansal, Saleema Amershi & Eric Horvitz
Topic: Multi-turn Reinforcement Learning with Large Language Models Agents, Agent evaluations

Microsoft Research India *June 2022 - June 2023*
Research Fellow
Advisors: Dr. Akshay Nambi & Tanuja Ganu
Topics: Reinforcement Learning, Large Language Models.
Projects and Press: 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*
Societal impact through Cloud and AI Fellow
Advisors: Dr. Akshay Nambi, Tanuja Ganu & Dr. Venkat Padmanabhan
Topics: Computer Vision, Bandits, Localization
Projects and Press: HAMS: HAMS Press - Punjab News Express
Impact: HAMS is successfully deployed across India - Dashboard (300,000 users)

Working papers

1. **Prenatal Care Agents**
   Vaibhav Balloli, Carissa Samuel, Samia Abdelnabi, Alex Peahl, Elizabeth Bondi-Kelly.
   Topics: Large Language Models Agents, Long-context optimization, Deployment

2. **Towards Improving Interactivity in Multi-Turn Human-Agent Systems**
   Vaibhav Balloli, Hussein Mozannar, Adam Fourney, Gagan Bansal, Saleema Amershi, Eric Horvitz
   Topics: Large Language Models, Agents, GRPO

3. **RELIANCE: Curating and Evaluating Reproductive Health Information on Social Media**
   Vaibhav Balloli, Laura Peyton Ellis, Vishala Mishra, Alice Chi, Alex Friedman Peahl, Elizabeth Bondi-Kelly
   Topics: Large Language Models, Reproductive Health, Multimodal eval.

4. **"Where is this coming from?" Uncovering Trustworthiness Ideals in AI-powered Peripartum Information Seeking**
Vaibhav Balloli, Julia Erickson, Xinyi Li, Erin van Liemt, Alex Friedman Peahl, Elizabeth Bondi-Kelly
Topics: Focus groups, Qualitative Analysis, human-AI system design

Selected Publications

3. **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, Representation Learning
Oral presentation, COLING 2025

2. **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, Representation Learning, Interpretability, Wildlife Conservation
IJCAI'24 Human-Centered AI Track, CV4Animals Workshop@CVPR'24 | Code | Project
[<5% Acceptance Rate]

1. **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

Select Awards and Honors

- Exceptional Preliminary exam (advancement to candidacy exam) *2025*
- Presented poster at Society-centered AI workshop at Google, Mountain View *2025*
- 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*
- 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*
- Co-founded **SmartCampus** which successfully managed **₹25 million** in transactions *2020*

Service

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

Software

1. autogen-openaiext-client Autogen community project for working with external LLMs through OpenAI API.

2. **Automated License Testing - Microsoft Research India**.
Microsoft Research India
Visual SLAM, Object Detection, and Trajectory analysis.