

Nimisha Karnatak

Ph.D. in Computer Science at University of Oxford

Official Email: nimisha.karnatak@some.ox.ac.uk

Personal Email: nimishakarnatak12@gmail.com

LinkedIn [↗](#) | Website [↗](#)

RESEARCH INTERESTS

Human-Computer Interaction, Human-AI Interaction, Healthcare, Accessibility, ICTD

EDUCATION

- **University of Oxford, United Kingdom** Oct 2023 - Present
Doctor of Philosophy in Computer Science
 - Supervisors: [Professor Sir Nigel Shadbolt](#) and [Professor Max Van Kleek](#)
 - Research Focus: Investigating the inclusive development of Gen-AI based systems for novice tech users in high-stakes settings, using community healthcare workers in the Global South as a representative case study
- **International Institute of Information Technology, Bangalore** July 2019 - June 2021
Master of Science in Digital Society, Specialization: Data Intensive Digital Design **CGPA: 3.72/4.0**
 - Dean's Merit List of IIIT-B (For outstanding academic performance)
- **G.B. Pant University of Agriculture & Technology, Pantnagar** Sept 2014 - June 2018
Bachelor of Technology in Industrial and Production Engineering **CGPA: 8.093/10.0**
 - Vice Chancellor's Silver Medalist of the batch 2014 - 18 (awarded to the highest CGPA holder)
 - Toppers merit scholarship for outstanding academic performance during all four years of the B.Tech program.

WORK EXPERIENCE

- **Google DeepMind London** London, United Kingdom
Student Researcher April 2024 - Oct 2024
 - **Project:** Exploring the use of generative AI in co-creation tasks, focusing on multimodal interaction
 - * Led the project under a non-disclosure agreement (NDA), including study design, participant recruitment, data collection, and qualitative analysis.
 - * First author paper under preparation
 - ★ *Note: Submitted U.S. patent application for the AI prototype*
- **Microsoft Research India** Bangalore, India
Research Fellow (Full-Time Position) July 2021 - May 2023
 - **Collaborators:** [Dr. Bill Thies](#), [Dr. Mohit Jain](#), [Dr. Indrani Medhi Thies](#), [Brooke Loughrin](#), [Odeline Mateu](#)
 - **Project 1:** Understanding the ecosystem of BP management in low-resource communities of India, joint research project with [Microsoft Health Futures](#) at [Microsoft Research, Redmond](#)
 - * Recruited 21 patients clinically diagnosed with hypertension or hypotension; conducted and analyzed 21 qualitative interviews
 - * Design recommendations for chronic disease management in resource-constrained settings in India
 - * First-author paper accepted in the [ACM TOCHI](#) journal, presented at **ACM CHI 2024** [2]
 - **Project 2:** Understanding the technology-mediated interaction of phlebotomists in India
 - * Identified and recruited stakeholders of the phlebotomists' ecosystem; conducted and analyzed 26 qualitative interviews and 3 observation studies
 - * Proposed design recommendations to improve transparency, trustworthiness, and confidentiality in the phlebotomy ecosystem.
 - * First-author paper accepted in [CSCW 2024](#) [3]

PUBLICATIONS

- [1] **Generative AI as Collaborative Technology for ASHA Workers in Marginalized Communities**
Nimisha Karnatak, Max Van Kleek, Nigel Shadbolt.
Accepted workshop paper at the [Collaborative AI and Modeling of Humans Bridge](#) at the Association for the Advancement of Artificial Intelligence ([AAAI 2024](#)) Conference ([Preprint](#))
- [2] **"Is it even giving the correct reading or not?": How Trust and Relationships Mediate Blood Pressure Management in India**
Nimisha Karnatak, Brooke Loughrin, Tiffany Amy Kuo, Odeline Mateu-Silvernail, Indrani Medhi Thies, Bill Thies, and Mohit Jain
Accepted paper at the Transactions on Human-Computer Interactions ([ACM TOCHI](#)).
★ *Note: Presented at the ACM conference on Human Factors in Computing Systems (ACM CHI 2024).* ([Paper](#))
- [3] **Understanding the Technology-Mediated Home Phlebotomy Ecosystem in India**
Nimisha Karnatak*, Meghna Gupta* and Mohit Jain (* denotes equal authorship)
Accepted paper at the ACM Conference On Computer-Supported Cooperative Work And Social Computing ([CSCW 2024](#)) Conference ([Paper](#))

INVITED TALKS

- **UXR Health Collectives, Microsoft Research Redmond, August 2023:** Designing for Trust: UX Strategies in Blood Pressure Management for Low-Resource Indian Communities
- **Technology and Empowerment Group, Microsoft Research India, April 2022:** Understanding the Ecosystem of Blood Pressure Management in Low Resource Communities of India

ACHIEVEMENTS

- Nominated by the University of Oxford for the **Google PhD Fellowship** through a competitive, university-wide selection process. ([Link](#))
- Nominated by the University of Oxford for the **Apple Scholars in AI/ML PhD Fellowship** through a competitive, university-wide selection process. ([Link](#))
- Awarded \$1,500 scholarship to present my work titled “Generative AI as Collaborative Technology for ASHA Workers in Marginalized Communities.” at the 38th AAAI Conference on Artificial Intelligence in person
- Selected for the SIGCHI Emerging Scholars at CSCW 2023 and awarded \$1,000 in financial support.
- Amongst the top 65 students out of over 15000 applicants across India to get selected as a **SPARK summer Intern for 2020** at the Indian Institute of Technology, Roorkee (**IIT-R**)
- Won the ‘**Best Presentation Award**’ for my internship work at the SPARK Internship Program of the Indian Institute Of Technology, Roorkee (**IIT-R**) [Certificate Of Appreciation by IIT-R and SPARK](#)

FUNDED ACADEMIC RESEARCH

- **Indian Institute of Technology Roorkee** Roorkee, India
User Experience Research Intern June 2020 - July 2020
 - **Project:** Evaluation of urban space from the perception of the elderly to build an **inclusive** neighborhood
 - **Advisor:** [Prof. Saptarshi Kolay](#) (IIT-Roorkee)
 - **Responsibilities:** Created personas and scenarios; designed survey for the user study containing a total of 65 questions, analyzed the qualitative and quantitative data to design ideas for the active aging of the elderly
- **International Labour Organisation (ILO)** Geneva, Switzerland
Qualitative Research Assistant Sep 2019 - June 2020
 - **Project:** Exploring the experiences of women working in the AI domain in India and understanding the ethical aspects of AI from the perspective of women.
 - **Advisors:** [Dr. Uma Rani](#) (Senior Economist, ILO), [Prof. Preeti Mudliar](#) (IIIT-B)
 - **Responsibilities:** Recruited Indian female AI engineers as participants using LinkedIn and snowball sampling; designed questionnaire, conducted 24 qualitative interviews averaging 120 min
- **Digital Identity Research Initiative at Indian School Of Business and IIIT-B** Bangalore, India
Research Intern Jan 2020 - June 2020
 - **Project:** Exploring the implication of Aadhar failure and consequential exclusion.
 - **Advisor:** [Prof. Bidisha Chaudhuri](#) (IIIT-B)
 - **Responsibilities:** Performed statistical analysis and created infographics for a qualitative study in South India using MS Excel; documented literature on biases in biometric technology and Aadhaar

ACADEMIC & COMMUNITY SERVICES

- **Graduate Teaching Assistant** Fall 2024
Interaction Design (IDE), University of Oxford
- **External Reviewer** 2024 - Present
ACM CHI Conference on Human Factors in Computing Systems (ACM CHI)

ACADEMIC PROJECTS

- **Few-Shot Classification of Medical Data:** Exploring Self-Supervised Learning Approaches for Classifying Low Resource Medical Data: A Comparative Investigation With MedMNIST
 - Used a hybrid approach leveraging self-supervised learning and active learning to perform few-shot image classification of medical data; Technology Stack: Python, PyTorch, Numpy, Matplotlib
- **Brain MRI Segmentation:** Developed a deep-learning network for semantic segmentation of brain MRI scans.
 - Trained a UNet-based architecture using Dice loss as objective function to perform brain MRI segmentation; Technology Stack: Python, PyTorch, Numpy, Matplotlib
- **User Research to Design Accessible Mobile Payment Apps for the Visually Challenged::** Developed low-fidelity prototype (Braille inscribed on cardboard simulating mobile phone screens) and high-fidelity prototype (by deploying Adobe XD) using design concepts from user research for usability testing
 - Research methodology: qualitative interviews of 30-40 minutes with 11 visually challenged participants

- Usability Testing methods: Think out loud and Participant observation followed by an interview
- **Virtual internship in Product Management:** Performed strategic evaluation of the Microsoft product 'Workplace Analytics' on the grounds of software product management and proposed design recommendations under the supervision of Professor Haragopal Mangipudi, Infosys veteran & Finacle creator
- **Developed high-fidelity virtual classroom prototype using Adobe XD:** Analyzed the impact of emergency remote learning on IIIT-B students during COVID-19 through quantitative and qualitative research.
- **Spatial Data Analysis of Bangalore's Land Use and Cover:** Conducted a Time Series Analysis on Bangalore's Land Use and Land Cover using GRASS GIS software for the years 2003, 2010, 2015, and 2020.
- **Bachelor of Technology Final Year Thesis Project:** Analyzed and compared the temperature and humidity variation between the Earth Energy Enabled Cooling System and Traditional Cooler.

RELEVANT COURSEWORK

- **Doctor of Philosophy:** Deep Learning in Healthcare
- **Master of Science:** Human-Computer Interaction; Quantitative and Qualitative Research; Web and the Mind; Software Product Management; Algorithms; Social Complexity and Systems Thinking; ICT Policy and Regulation; Technology and Society; Geographic Information System
- **Bachelor of Technology:** Work System Design; Automation and Robotics; Probability, Statistics, and Queuing Models; Industrial Engineering; Engineering Mathematics; Numerical Methods for Engineering

SKILLS / TECHNOLOGIES

- **Human Computer Interaction:** User Study, Focus Groups, Prototyping, Wireframing, Adobe XD, Usability Testing and Evaluation, Design Thinking, Accessible and Inclusive design, Personas, Scenarios, Storyboards, Diary study, Survey Design and Sampling, Stakeholder/user interviews
- **Research and Data Analysis Skills:** Qualitative Research & Quantitative Research, Data Collection & Analysis, Participant Observation, Ethnographic Research, Microsoft Excel, Advanced Statistics
- **Technical Skills:** Python (NumPy), PyTorch, Machine Learning, Deep Learning (Convolutional Neural Networks and Artificial Neural Networks)

POSITIONS OF RESPONSIBILITY

- **NGO: Jivaamrit Khelpur Shermou Roorkee (2018-19):** Volunteered for organic farming awareness among farmers.
- **Indian Red Cross Society (since 2015):** Life member of Red Cross Society since 2015, Volunteered in organizing 5 blood donation & 4 health check-up camps.
- **National Service Scheme by Ministry of Youth Affairs & Sports, Government Of India (2014-2017):** Awarded B&C certification for completing 240 & 360 hours of volunteering in 2014-2016 and 2016-2017

EXTRACURRICULAR ACTIVITIES

- Selected for the University of Oxford's [SeedWISE Programme](#), an exclusive initiative empowering women in STEM to develop entrepreneurial skills ([Certificate](#))
- Created an Instagram page to create awareness for eating healthy with over 26000 followers [indian_weightloss_recipes](#)
- Selected in Global Leadership Experience Program 2019 organized by Common Purpose in collaboration with King's College London and IIIT-B
- Winner of Netritva: Leadership Hunt contest 2016, organized by YUVA, The National Youth Awakening Festival.