

Nimisha Karnatak

Ph.D. in Computer Science at University of Oxford

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RESEARCH INTERESTS

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

EDUCATION

University of Oxford

Oct 2023 - Oct 2027 (expected)

Doctor of Philosophy in Computer Science

- Supervisors: [Professor Sir Nigel Shadbolt](#) and [Professor Max Van Kleek](#)
- Research Focus: Investigating the design and development of contextual GenAI-mediated systems to provide workflow assistance for novice AI users, such as community healthcare workers
- Publications: AAAI 2024 (W) [3], CHI 2025 (W) [1]

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

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 throughout the B.Tech. programme

WORK EXPERIENCE

The World Bank

International Consultant

Washington, D.C., United States

May 2025 – Present

Advisors: [Dr. Renos Vakis](#), [Abigail Dalton](#)

Project: Working with the [Mind, Behavior, and Development \(eMBeD\)](#) team to operationalize applications of Human-Centered AI in global development programs

Google DeepMind London

Student Researcher

London, United Kingdom

April 2024 - Oct 2024

Advisor: [Kristen Olson](#)

Project: Understanding the co-creation dynamics of novice designers with Generative AI

- * Contributed to developing a multimodal Generative AI ad creation prototype
- * Conducted usability testing of the AI ad creation prototype with 16 small business owners in London, UK
- * First-author workshop paper accepted at [CHI 2025](#) [1]
- * First author paper under preparation for submission in [ACM TOCHI](#) [2]

Note: Submitted U.S. patent application for the AI prototype

Microsoft Research India

Research Fellow (Full-Time Position)

Bangalore, India

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/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](#) [4]

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 and trustworthiness in the phlebotomy ecosystem.
- * First-author paper accepted in [CSCW 2024](#) [5]

PUBLICATIONS

- [1] **Expanding the Generative AI Design Space through Structured Prompting and Multimodal Interfaces.** [Nimisha Karnatak](#), [Adrien F. Baranes](#), [Rob Marchant](#), [Huinan Zeng](#), [Triona Butler](#), [Kristen Olson](#). Accepted at the ACM SIGCHI Conference on Human Factors in Computing Systems, Workshop on Designing and Developing User Interfaces with AI ([ACM CHI 2025](#)) [📄]

- [2] **ACAI for SBOs: AI Co-Creation for Advertising and Inspiration for Small Business Owners**
Nimisha Karnatak, Adrien F. Baranes, Rob Marchant, Triona Butler, Kristen Olson.
 Under preparation for submission at the Transactions on Human-Computer Interactions ([ACM TOCHI](#)) 
- [3] **Generative AI as Collaborative Technology for ASHA Workers in Marginalized Communities**
Nimisha Karnatak, Max Van Kleeck, Nigel Shadbolt.
 Accepted at the Collaborative AI and Modeling of Humans Bridge at the Association for the Advancement of Artificial Intelligence ([AAAI 2024](#)) 
- [4] **“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 
- [5] **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](#)) 

INVITED TALKS

Google DeepMind, London, August 2024: Bridging the Expertise Gap: Understanding the Dynamics of Co-Creation between LLM-powered Tools and Novice Designers

UXR Health Collectives, Microsoft Research Redmond, May 2022: “Is it even giving the correct reading or not?”: How Trust and Relationships Mediate Blood Pressure Management in India

Technology and Empowerment Group, Microsoft Research India, April 2022: Understanding the Ecosystem of Blood Pressure Management in Low Resource Communities of India

Oxford Women in Computer Science (OxWoCS), May 2025: Invited panelist at “Keep It Real”, the flagship event for women in STEM hosted by OxWoCS.

ACHIEVEMENTS

- Research Delegate, Citadel and Citadel Securities PhD Summit: **Selected among 25 globally distinguished PhD and postdoctoral researchers** to attend an invite-only summit on academic research applications in finance.
- 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

<p>Indian Institute of Technology Roorkee <i>User Experience Research Intern</i></p> <p>Project: Evaluation of urban space from the perception of the elderly to build an inclusive neighborhood</p> <p>Advisor: Prof. Saptarshi Kolay (IIT-Roorkee)</p> <p>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</p>	<p>Roorkee, India June 2020 - July 2020</p>
<p>International Labour Organisation (ILO) <i>Qualitative Research Assistant</i></p> <p>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.</p> <p>Advisors: Dr. Uma Rani (Senior Economist, ILO), Prof. Preeti Mudliar (IIIT-B)</p> <p>Responsibilities: Recruited Indian female AI engineers as participants using LinkedIn and snowball sampling; designed questionnaire, conducted 24 qualitative interviews averaging 120 min</p>	<p>Geneva, Switzerland Sep 2019 - June 2020</p>
<p>Digital Identity Research Initiative at Indian School Of Business and IIIT-B <i>Research Intern</i></p> <p>Project: Exploring the implication of Aadhar failure and consequential exclusion.</p> <p>Advisor: Prof. Bidisha Chaudhuri (IIIT-B)</p> <p>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</p>	<p>Bangalore, India Jan 2020 - June 2020</p>

ACADEMIC & COMMUNITY SERVICES

Mentor

Supervising 6 undergraduate Computer Science students, University of Oxford

Feb 2025 - May 2025

Graduate Teaching Assistant

Interaction Design (IDE), University of Oxford

Fall 2024

External Reviewer

ACM CHI Conference on Human Factors in Computing Systems (ACM CHI)

2024

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, Figma

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 25000 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.

REFERENCES

Sir Nigel Shadbolt FRS FREng FBCS

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Doctoral Supervisor, PI
University of Oxford
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Bill Thies

Former Principal Researcher at Microsoft Research India
Co-Founder and Chair at Everwell
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Max Van Kleek

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Kristen Olsen

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