# Rudrajit Choudhuri

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## Summary

Mixed-methods researcher with 4+ years of experience leading end-to-end research projects. Specialization in *Human-Computer interaction (HCI), Cognitive Science, AI, Inclusive Design, and Software Engineering (SE)*. Currently focused on (1) understanding cognitive factors influencing human-AI interaction in SE, and (2) designing human interfaces for AI tools to improve user experiences in AI-assisted software development and CS education.

## Education

**Oregon State University** **Corvallis, OR**

*Ph.D. in Computer Science, GPA: 4/4 (Focus: HCI of AI, SE)* *2022–2026 (Expected)*

*M.S. in Computer Science, GPA: 4/4 (Focus: HCI of AI, SE)* *2022–2024*

*Committee: Anita Sarma (Advisor), Margaret Burnett, Christopher Hundhausen, Igor Steinmacher, Christopher Sanchez*

**St. Thomas' College of Engineering & Technology** **Kolkata, India**

*B.Tech (with Hons.) in Computer Science, GPA: 9.81/10 (Focus: AI in Radiology)* ***[College Rank 1]*** *2018–2022*

## Work Experience

**Graduate Research Assistant, HAI-UX Researcher** **Sep 2022–Present**

*Oregon State University, Advisor: Anita Sarma* *Corvallis, OR*

- Led user research uncovering productivity, cognitive load, and self-efficacy impacts of generative AI (genAI) in SE, identifying AI failures (and their causes) leading to human consequences, producing design strategies for improved HAI interactions.
- Developed a theoretically grounded statistical model for (cognitive) factors affecting developers' trust and behavioral intentions towards genAI in software development, through a study with developers (N=238) from Microsoft and GitHub. This produced theory-backed strategies for trustworthy and inclusive AI design.
- Led user research with SE students, to uncover where & why they face challenges in using AI for SE education, contributing a theoretical understanding of its impacts on their learning, task outcomes, self-perception, and AI adoption.
- Co-developed automated inclusivity detector (AID) tool based on the GenderMag method, to detect cognitive bias bugs that impact diverse students in online CS courseware. Fixes helped students be more in control of their learning experience.
- Co-developed a theoretical framework modeling the diverse impact of interpersonal challenges on the sense of welcomeness in OSS, through a study of 706 contributors at Linux Foundation. This produced actionable strategies to foster more inclusive and welcoming OSS communities.

**Research Intern** **May 2022–July 2022**

*Indian Institute of Technology (IIT), Kharagpur, Lab: AI4ICPS, Advisor: Manoj Sharma* *Kharagpur, India*

- Co-led research in developing trustworthy cyber-physical systems & developed defenses against adversarial attacks in autonomous driving agents. This produced structure-based model training techniques in multi-modal autonomous systems.

**Research Student (REU)** **Nov 2021–Apr 2022**

*Oregon State University, Advisor: Anita Sarma* *Remote*

- Collaborated on a research project investigating cognitive inclusivity bugs in online courses and developed an inclusivity checker tool to automatically detect these bugs in online courseware.

**Associate Software Developer Intern** **Sep 2021–Dec 2021**

*Nomura Research Institute Financial Technologies India Pvt. Ltd.* *Kolkata, India*

- Co-developed an automated reconciliation solution enabling extensible, configurable processes for large, multi-format databases, enhancing functionality and efficiency across different business operations.

**Research Student - AI for Radiology** **Mar 2019–July 2022**

*St. Thomas' College of Engineering & Technology, Advisor: Amiya Halder, Amit Paul* *Kolkata, India*

- Worked at the intersections of image processing, soft computing, and statistical machine learning, for developing algorithms for biomedical, radiological, and histopathological diagnostics. Recipient of 2 distinguished paper awards.

## Selected Peer-Reviewed Publications

** Full publication list can be found on* [Google Scholar]

**What Guides Our Choices? Modeling Developers' Trust and Behavioral Intentions Towards GenAI** [pdf|data] **ICSE 2025**
*Acceptance:* 10.2%
***R Choudhuri***, *B Trinkenreich, R Pandita, E Kalliamvakou, I Steinmacher, M Gerosa, C Sanchez, A Sarma*

**Investigating the Impact of Interpersonal Challenges on Feeling Welcome in OSS** [pdf] **ICSE 2025**
*B Trinkenreich, Z Feng,* ***R Choudhuri****, M Gerosa, A Sarma, I Steinmacher* *Acceptance:* 10.2%

**Insights from the Frontline: GenAI Utilization Among Software Engineering Students** [pdf|data] **CSEE&T 2025**
*Acceptance:* 31%
***R Choudhuri***, *A Ramakrishnan, A Chatterjee, B Trinkenreich, I Steinmacher, M Gerosa, A Sarma*

**How Far Are We? The Triumphs and Trials of Generative AI in Learning Software Engineering** [pdf|data] **ICSE 2024**
*Acceptance:* 21.2%
***R Choudhuri***, *D Liu, I Steinmacher, M Gerosa, A Sarma*

**Debugging for Inclusivity in Online CS Courseware: Does it Work?** [pdf] **ICER 2024**
*A Chatterjee,* ***R Choudhuri****, M Sarkar, S Chattopadhyay, D Liu, S Hedaoo, M Burnett, A Sarma* *Acceptance:* 20.1%

**Brain MRI Tumour Classification using Quantum Classical Convolutional Neural Network Architecture** [pdf] **NCAA Journal 2023**
*Impact Factor:* 4.5
***R Choudhuri***, *A Halder*

**Inclusivity Bugs in Online Courseware: A Field Study** [pdf] **ICER 2022**
*A Chatterjee, L Letaw, R Garcia, D Reddy,* ***R Choudhuri****, S Kumar, P Morreale, A Sarma, M Burnett* *Acceptance:* 16%

**Automated Brain Tumor Analysis using Deep Learning Based Framework** [pdf] **Book Chapter**
Medical Data Analysis and Processing using Explainable Artificial Intelligence, CRC Press
*A Halder, A Sarkar,* ***R Choudhuri***

**Structure-Based Learning for Defense against Adversarial Attacks in Autonomous Driving Agents** [pdf] **CVIP 2022**
*Acceptance:* 33%
*MK Sharma,* ***R Choudhuri****, M Dixit, M Sarkar, B Dittakavi*

🏆 **Adaptive Rough-Fuzzy Kernelized Clustering Algorithm for Noisy Brain MRI Tissue Segmentation** [Distinguished Paper Award] [pdf] **CVIP 2021**
*Acceptance:* 26.1%
**R Choudhuri**, A Halder

🏆 **High-Density Salt and Pepper Noise Removal Algorithm using Statistical Approach** [Distinguished Paper Award] [pdf] **ICACA 2021**
*Acceptance:* 29.7%
A Halder, **R Choudhuri**

## Technical Skills

**Qualitative and Quantitative UX Research Methods**: Field and User Studies, Surveys, Interviews, Hypothesis Testing, Inclusive Design, Heuristic Evaluation, Cognitive Walkthrough, Experimental Design, Usability Testing, A/B Testing, PLS-SEM, CB-SEM, Exploratory & Confirmatory Factor Analysis, Psychometric Analysis, Regression Analysis, Bayesian Statistics, Prototypes, Factorial Studies, Vignettes, Socio-Technical Grounded Theory

**Machine Learning**: Statistical Modeling, Supervised Learning, Unsupervised Learning, Feature Engineering, Fine Tuning, ANN, CNN, RNN, Attention Mechanisms, Transformers, Adversarial Networks, Natural Language Processing (NLP), Image Processing, Computer Vision, Image Segmentation, Causal Inference for AI

**Generative AI**: LangChains, Agentic Workflows, Neural Retrieval, RAG, Fine-tuning LLM, Multimodal Prompting

**Frameworks and Cloud**: Scikit-Learn, TensorFlow, PyTorch, Keras, OpenCV, Flask, React, node.js, Git, AWS

**UX Research and Analysis Platforms**: Qualtrics, SurveyMonkey, Atlas.ti, Figma, RStudio, JASP, SmartPLS

**Programming**: Python, R, C/C++, Java, JavaScript, MatLab, LaTeX, SQL, HTML, CSS

## Invited Talks

**Guest Speaker, Colorado State University, USA** **Nov 2024**

*Invited talk on 'Cognitive factors affecting trust & behavioral intentions towards Artificial Intelligence' (90 min)*

## Relevant Coursework

- Software Engineering Methods
- Methods of Data Analysis (Dept. of Statistics)
- Causal Inference for AI
- Computer Graphics
- Human-Computer Interaction
- Field Studies in SE and HCI
- Lab Studies in SE and HCI
- Inclusive Design (HCI)

## Professional Service

### Mentor

Mentored ***5 undergraduate*** *REU students* (Dylan Liu, Mrinmoy Sarkar, Pierce Fleming, Arinjay Bhowmick, Mayank Dixit) & ***1 graduate*** *student* (Ambareesh Ramakrishnan) across research projects that led to successful publications.

#### Reviewer

- Information and Software Technology (IST) Journal
- Journal of Systems and Software
- ACM Indian Conference on Computer Vision, Graphics and Image Processing (ICVGIP) 2022, 2023, and 2024
- International Conference on Computer Vision & Image Processing (CVIP) 2022 and 2023

#### Sub-reviewer

- 33rd ACM/IEEE International Conference on Program Comprehension (ICPC 2025)
- 46th ACM/IEEE International Conference on Software Engineering (ICSE 2024)
- Mining Software Repositories (MSR 2024)
- ACM Joint European Software Engineering Conf. & Symposium on the Foundations of Software Engineering (FSE 2023)
- ACM Conference on Human Factors in Computing Systems (CHI 2022)
- IEEE Transactions on Software Engineering
- Empirical Software Engineering

#### Volunteer

- Student Volunteer – 47th ACM/IEEE International Conference on Software Engineering (ICSE 2025)

## Awards and Honors

- MOSIP-Global Impact Research Fellowship (Gates Foundation) 2025
- IAPR Distinguished Paper Award (CVIP 2021)
- Best Paper Award (ICACA 2021)
- Gold Medalist (NPTEL) - IIT Ropar
- NSF Travel Award for ICSE 2024, 2025