Advait Bhat

Pre-Doctoral Research Fellow, Microsoft Research

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Education

Jul 2021	**Indian Institute of Technology Bombay**	**Mumbai, India**
Jul 2016	Dual Degree in Design (B.Des + M.Des with specialization in Interaction Design)	

Research Interests

My research interests lie at the intersection of HCI, AI, and NLP. I focus on understanding user interaction with generative AI to design AI tools that preserve and enhance critical thinking, creativity, and personal expression. I am interested in examining AI's impact on individuals, social interactions, and broader societal contexts. I have employed qualitative methods, such as interviews, contextual inquiry, protocol analysis, and quantitative methods, including surveys, pre-post tests, and computational techniques, to understand and improve human-AI interaction.

Experience

Present **Jul 2022**	**Microsoft Research** [🌐] *Research Fellow	Advisor: Dr. Vivek Seshadri* Designing methods to enable knowledge acquisition and skilling through data annotation for low-income data annotators in rural and semi-urban India.	**Bangalore, India**
Present **Feb 2021**	**Cornell Tech	Social Technologies Lab** [🌐] *Visiting Researcher	Advisors: Prof. Mor Naaman, Dr. Maurice Jakesch* Examining if and how writing assistants powered by biased language models can influence the opinion formation process and opinions of writers.	**Remote**
Jul 2022 **Aug 2021**	**Indian Institute of Technology Bombay	Interaction Design for Indian Needs Lab** [🌐] **Mumbai, India** *Research Associate	Advisor: Prof. Anirudha Joshi* Conducted user studies to understand mobile banking usage in low-literate and elderly users along with designing and testing a mobile banking application with interactive voice guidance.	
Jul 2022 **Nov 2021**	**Ooloi Labs** [🌐] *Creative Technologist	Mentors: Akshay Roongta, Abrar Burk* Designed and developed data collection technologies such as interactive voice response systems for reporting human rights violations in Delhi slums and chat-bots for grassroots monitoring of water quality.	**Remote**
Jul 2019 **May 2019**	**Microsoft	India Development Center** [🌐] *User Experience Intern* Designed an intelligent user interface for an enterprise product for identifying and mitigating ad fraud on Bing Ads.	**Bangalore, India**

Publications

S=In Submission, C=Conference, W=Workshop, P=Poster/Demo, J=Journal

[C.2]   **Co-writing with Opinionated Language Models Affects Users' Views** [🔗]
Maurice Jakesch, **Advait Bhat**, Daniel Buschek, Lior Zalmanson, Mor Naaman
ACM CHI Conference on Human Factors in Computing Systems   [🏆 **Best Paper Honorable Mention Award @ CHI'23**]

[C.1]   **Interacting with Next-Phrase Suggestions: How Suggestion Systems Aid and Influence the Cognitive Processes of Writing** [🔗]
Advait Bhat, Saaket Agashe, Parth Oberoi, Niharika Mohile, Ravi Jangir, Anirudha Joshi
International Conference on Intelligent User Interfaces (IUI)   [🏆 **Best Paper Honorable Mention Award @ IUI'23**]

[S.3]   **How Co-writing with Opinionated Language Models Can Shape the Opinion Writing Process**
Advait Bhat, Maurice Jakesch, Mor Naaman
[Working Paper]

[S.2]   **Bias in AI Autocomplete Suggestions Leads to Attitude Shift on Societal Issues**
Sterling Williams-Ceci, Maurice Jakesch, <u>**Advait Bhat**</u>, Kowe Kadoma, Lior Zalmanson, Mor Naaman
[In Submission]

[S.1]   **Speaking in Terms of Money: Financial Knowledge Acquisition through Speech Data Generation**
<u>**Advait Bhat**</u>*, Nidhi Kulkarni*, Aditya Yadavalli, Jivat Neet Kaur, Anurag Shukla, Monali Shelar, Safiya F Husain,
Vivek Seshadri (* = Equal Contribution)
[In Submission]

[W.1]   **How do People Interact with Biased Text Prediction Models while Writing?**   [%]
<u>**Advait Bhat**</u>, Saaket Agashe, Anirudha Joshi
First Workshop on Bridging Human–Computer Interaction and Natural Language Processing @ EACL   **[EACL'21]**

[P.1]   **Designing Playful Activities to Promote Practice of Preposition Skills for Kids with ASD**   [%]
<u>**Advait Bhat**</u>
ACM SIGACCESS Conference on Computers and Accessibility   **[ASSETS '20]**

Select Research Projects

Examining the Influence of Opinionated Language Models during Writing   Feb'21 - Present
Advisors: Prof. Mor Naaman, Dr. Maurice Jakesch

> Investigated biased LM-powered writing assistants' impact on the opinions users hold and express through a large-scale online experiment.

> Built an LM-powered text editor and writing assistant, along with a tool to generate writing process replays using interaction logs, applying expertise in web development and prompt engineering for GPT-3, 3.5 & 4.

> Led a mixed methods study employing retrospective protocol analysis and a computational pipeline using GPT-3.5-Turbo API, BERT Embeddings, and HDBSCAN clustering to analyze writer-LM interactions.

Integrating Learning and Skilling with Data Annotation for Low-income Data Annotators   Jul'22 - Present
Advisor: Dr. Vivek Seshadri

> Developed a framework for learning through data annotation for enabling knowledge acquisition for rural Indian communities via domain-specific data annotation tasks.

> Conducted a contextual inquiry in Bangalore to develop a financial literacy curriculum adapted for data annotation tasks, ensuring usability on the Karya platform and quality data generation.

> Implemented and tested the learn-to-earn framework through a financial literacy program in Pune, leading to a 41.6% improvement in participants' financial literacy and initiating community discussions.

Studying Writer Interaction with Langauge Model-powered Writing Assistants   Aug'20 - Jan'22
Advisor: Prof. Anirudha Joshi

> Designed and led a qualitative study to explore how users interact with sentiment-aligned and misaligned language models while writing movie reviews.

> Utilized concurrent and retrospective protocol analysis for studying cognitive processes in writing, and developed a custom GPT-2 powered writing interface fine-tuned on positive/negative movie reviews.

> Generated a theoretical cognitive process model of 'writer-AI interaction', describing AI's impact on the writing process.

Talks

"Examining Co-Writing with Language Models and Its Effects on our Writing, Ideas and Opinions"

> Monsoon Course on HCI 2023   Jun 2023   (Mumbai, India)
> Roundtable ML invited talks, Hebrew University of Jerusalem [▶]   May 2023   (Remote)
> IUI 2023 Presentation   Mar 2023   (Sydney, Australia)
> Microsoft Research / Turing India   Aug 2022   (Bangalore, India)

"Designing Playful Therapy Interventions for Children with ASD"

> ASSETS 2020 Presentation   Apr 2020   (Remote)
> ACM SIGCHI Mumbai Chapter   May 2020   (Remote)

Honours and Awards

Best Paper Honorable mention award at CHI'23 Received an honorable mention best paper recognition for 'Co-writing with opinionated language models affects users' views'

Best Paper Honorable mention award at IUI'23 Received an honorable mention best paper recognition for 'Interacting with Next-Phrase Suggestions: How Suggestion Systems Aid and Influence the Cognitive Processes of Writing'

Gary Marsden Travel Award [🌐] For attending IUI'23 held in Sydney, Australia.

Academic Service

Reviewer	IndiaHCI '23, CHI LBW '22
Volunteer	INTERACT '17, IndiaHCI '16, IndiaHCI '18

Select Design and Software Projects

Data collection tools for on-field reporting.   Feb'21 - Present

> Used participatory design methods to design an interactive voice response system for low-literate women to report human rights violations in Delhi slums and a WhatsApp-based chatbot for water quality monitoring for on-ground volunteers.

> Developed the IVR system using the Exotel API and Whatsapp-based chatbot using Glific.

> Implemented APIs and database integrations for the IVR system and Whatsapp chatbot.

Banking application with interactive voice guidance for low-literate and elderly users.   Jul'22 - Present

> Designed an end-to-end banking application interface, user experience and interactions.

> Used card sorting, heuristic evaluation application design, evaluation and iteration.

> Used task-based usability testing for evaluating the design with low-literate and elderly users.

Bing Fraud Linkage Analyser   Aug'20 - Jan'22

> Worked with a team of developers and researchers to build a 'Search Fraud detection interface' for the Bing search engine.

> Designed a novel intelligent interface that leverages clustering to identify potentially fraudulent ads in the search engine to help human reviewers catch fraudsters faster and more accurately.

Teaching and Leadership Roles

Post Graduate Program in User Experience Design at IIT Bombay   *Teaching Assistant*   Nov'21 - May'22

> Taught and mentored a cohort of industry professionals in UX design and research methods.

IIT Bombay ACM SIGCHI Student Chapter   *Vice-Chair*   Dec'20 - Jul'21

> Organized monthly talks, workshops and community events for the HCI community at IIT Bombay.

References

> Prof. Anirudha Joshi . . . . *Professor, IIT Bombay* [🌐]
> Prof. Mor Naaman . . . . *Professor, Cornell Tech* [🌐]
> Dr. Vivek Seshadri . . . . *Principal Researcher, Microsoft Research* [🌐]
> Dr. Maurice Jakesch . . . . *Cornell Tech* [🌐]