

Tanvi Bajpai

PhD Candidate and Graduate Research Assistant

tbajpai2@illinois.edu

tanvibajpai.com

EDUCATION

- **University of Illinois at Urbana Champaign (UIUC)** Urbana, IL
Ph.D Candidate in Computer Science Aug. 2019 – May 2025
 - GPA: 3.9
 - Co-advisors: Prof. Chandra Chekuri and Prof. Eshwar Chandrasekharan
 - Research Areas:
 - * Theoretical Computer Science (e.g., Algorithm Design and Optimization, Fair Clustering)
 - * Human-Computer Interaction (e.g., Social Computing, Social Media, Community Moderation)
- **Carnegie Mellon University (CMU)** Pittsburgh, PA
B.S. in Computer Science (Additional Major in Discrete Math & Logic), University Honors Aug. 2015 – May. 2019
 - GPA: 3.6
 - Research Advisor: Prof. R. Ravi

WORK EXPERIENCE

- **AliveCor** Mountain View, CA
Data Science Research Intern May 2023 - August 2024
 - Developed and applied advanced machine learning models for analyzing and classifying electrocardiogram (ECG) data, integrating signal processing techniques to enable real-time heart health monitoring and early detection of cardiac anomalies in healthcare applications.
 - Collaborated on interdisciplinary AI projects, leveraging open-source large language models (LLMs) to design and implement natural language processing (NLP) solutions that enhanced user interaction, product usability, and the overall healthcare user experience.
- **Illinois Secondary Teaching and Computer Science Initiative** Urbana, IL
Course Designer and Instructor Fall 2020 - May 2022
 - Designed and taught a discrete mathematics course for Illinois secondary school teachers as part of a Computer Science accreditation program, empowering educators with advanced teaching strategies and enriching their curriculum to elevate computer science education in secondary schools.
- **Microsoft** Redmond, WA
Explorer (SWE + PM) Intern Summer 2017
 - Developed a Node.js Software Development Kit (SDK) to streamline AI-powered chat-bot creation for Mixer and Xbox Live, enhancing user engagement and enabling efficient moderation across both platforms.
 - Designed and implemented MOSSMO, an advanced moderator chat-bot that utilized machine learning models for sentiment analysis and automated reporting of inappropriate behavior, showcasing the SDK's capabilities and driving safer online community interactions.

PUBLICATIONS

Papers Under Submission and Pre-prints

- ***Covering with Few Submodular Constraints: A Generalized Approach to Fair Covering.***
pre-print; to be submitted for peer review in November 2024
Tanvi Bajpai, Chandra Chekuri, Pooja Kulkarni

- ***Modeling the Modqueue: Towards Understanding and Improving Report Resolution on Reddit.***

pre-print; submitted for peer review in September 2024

Tanvi Bajpai, Eshwar Chandrasekharan

Peer-Reviewed Conference Publications

- ***Bicriteria Approximation Algorithms for Priority Matroid Median.***
ACM International Conference on Approximation Algorithms for Combinatorial Optimization Problems (APPROX '23)
Tanvi Bajpai, Chandra Chekuri
- ***Measuring User-Moderator Alignment on r/ChangeMyView.***
ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW '23)
**Received Best Paper Award
Vinay Koshy, **Tanvi Bajpai**, Eshwar Chandrasekharan, Karrie Karahalios, Hari Sundaram
- ***ConvEx: A Visual Conversation Exploration System for Discord Moderators.***
ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW '23)
Frederick Choi, **Tanvi Bajpai**, Sowmya Pratipati, Eshwar Chandrasekharan
- ***Harmonizing the Cacophony with MIC: An Affordance-aware Framework for Platform Moderation.***
ACM Conference On Computer-Supported Cooperative Work And Social Computing (CSCW '22)
Tanvi Bajpai, Drshika Asher, Anwesa Goswami, Eshwar Chandrasekharan
- ***Revisiting Priority k -Center: Fairness and Outliers.***
International Colloquium on Automata, Languages and Programming (ICALP '21)
Tanvi Bajpai, Deeparnab Chakrabarty, Chandra Chekuri, Maryam Negahbani

Peer-Reviewed Journal Publications

- ***A new system-wide diversity measure for recommendations with efficient algorithms.***
SIAM Journal of Mathematics of Data Science, Volume 1 (SIMODS '19)
Arda Antikacioglu, **Tanvi Bajpai**, R. Ravi

TECHNICAL SKILLS

- **Programming Languages:** Python, Java/Javascript, C/C++, OCaml, Processing, HTML/CSS
- **Technologies:** L^AT_EX, Jupyter Notebook, TensorFlow, Pytorch, Keras, Agent-Based Modeling and Simulations (NetLogo, Mesa)

HONORS AND AWARDS

- **Outstanding TA Award, UIUC** Fall 2020
 - Awarded to five teaching assistants in the Computer Science Department each semester in recognition of their dedication to teaching and excellence in supporting student learning, as nominated by faculty members.
- **K&L Gates Prize, CMU** 2019
 - University Award for the graduating senior who best inspires fellow students to embrace a love of learning through a combination of intellectual achievement, engagement with the community, and exemplary character.
- **Women's Association Outstanding Graduating Senior Award, CMU** 2019

- Award for graduating seniors, emphasizing recognition of students committed to advancing women in their academic pursuits and promoting gender equity within their fields of study.
- **Mark Stehlik Introductory & Service Teaching Award, CMU** 2019
 - Award for the graduating senior who demonstrates exceptional dedication and invaluable contributions to teaching introductory courses, enhancing the learning experience for new students.
- **Senior Leadership Recognition, CMU** 2019
- **University Honors, CMU** 2019
- **Mark Stehlik SCS Alumni Undergraduate Impact Scholarship, CMU** 2018
 - Scholarship awarded to undergraduate students in the CMU School of Computer Science who demonstrate a commitment to excellence beyond the classroom, making significant contributions to the field of computer science and positively impacting their communities.

SERVICE AND OUTREACH

Reviewing

- **ACM Conference on Human Factors in Computing Systems (2024)**
- **ACM-SIAM Symposium on Discrete Algorithms(2024)**
- **ACM Conference On Computer-Supported Cooperative Work And Social Computing (2023)**
- **Operations Research Letters Journal (2021-2022)**

Outreach

- **Graduate Women in Computer Science (GradWCS)**
Founder, Co-President (UIUC, 2019 - 2021, 2023 - present)
- **Women School of Computer Science (W@SCS)**
Undergraduate Event Coordinator, Graduate Student Liaison (CMU, 2017 - 2019)

Institutional Service

- **Broadening Participation in Computing Committee**
(UIUC, 2020 - 2021)
- **School of Computer Science Dean Search Committee**
(CMU, 2018 - 2019)

TEACHING

I've worked as a teaching assistant for the following courses.

- **University of Illinois at Urbana-Champaign**
 - CS 598SC: Social Computing. Spring 2022
 - CS 374: Introduction to Algorithms and Models of Computation. Fall 2020⁺, Fall 2021
 - CS 473: Algorithms. Spring 2020, Fall 2024
 - CS 173: Discrete Structures. Fall 2019⁺, Summer 2020⁺

- **Carnegie Mellon University**

- 15-451/15-651: Algorithm Design and Analysis. Spring 2018, Spring 2019
- 15-151: Mathematical Foundations of Computer Science. Fall 2016, Fall 2017*, Fall 2018*

+ denotes semester placed on *Teachers Ranked as Excellent* list, * denotes semester serving as Head Teaching Assistant.

STUDENT ADVISING AND MENTORING

- **Sowmya Pratipati** (Fall 2021 - Spring 2024)
Sowmya received the UIUC CS Stars Fellowship in Fall 2021 and Fall 2022.
- **Drshika Asher** (Summer 2021 - Spring 2024)
Drshika received the UIUC CS Stars Fellowship in Fall 2021. During the summer of 2022, she interned at Microsoft Research. In Spring 2022, she was named a Clare Boothe Luce Scholar.
- **Anwesa Goswami** (Spring 2021)