

Tanvi Bajpai

PhD Candidate and Graduate Research Assistant

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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

- Designed, trained, and deployed deep learning models for electrocardiogram (ECG) classification, integrating signal processing techniques to enable real-time inference and large-scale deployment for heart health monitoring in a healthcare setting.
- Implemented and optimized machine learning pipelines using PyTorch/TensorFlow, ensuring efficient model training, inference, and scalability in production environments.
- Collaborated on interdisciplinary AI projects, leveraging open-source LLMs and NLP models to enhance user interaction, improve product usability, and deliver actionable healthcare insights.

- **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 and deployed AI-powered chatbot solutions for Mixer and Xbox Live using Node.js and machine learning models, enabling efficient content moderation and automated abuse detection at scale.
- Designed and implemented MOSSMO, an advanced moderator chatbot that leveraged NLP and sentiment analysis models to detect and automatically report inappropriate behavior, improving online community safety and engagement.
- Built a scalable SDK for chatbot development, streamlining AI-driven moderation tools and providing enhanced trust & safety functionalities for platform users.

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)