Tanvi Bajpai

PhD Candidate and Graduate Research Assistant

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Education

- **University of Illinois at Urbana Champaign (UIUC)** — Urbana, IL
  Ph.D Candidate in Computer Science — *Aug. 2019 – May 2025*
  - 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*
  - Research Advisor: Prof. R. Ravi

Work Experience

- **AliveCor** — Mountain View, CA
  Data Science Research Intern — *May 2023 - August 2024*
  - Conducted exploratory research and developed machine learning models for analyzing and classifying electrocardiogram (ECG) data, supporting product features for real-time heart health monitoring and early anomaly detection.
  - Collaborated with fellow data scientists on diverse projects, including consulting on natural language processing (NLP) solutions aimed at improving user interaction, product usability, and overall user experience in healthcare technology.

- **Illinois Secondary Teaching and Computer Science Initiative** — Urbana, IL
  Course Designer and Instructor — *Fall 2020 - May 2022*
  - Developed and instructed a discrete mathematics course for Illinois secondary school teachers, as part of a Computer Science accreditation program aimed at enhancing their teaching skills and curriculum.

- **Microsoft** — Redmond, WA
  Explorer (SWE + PM) Intern — *Summer 2017*
  - Developed a Node.js Software Development Kit (SDK) to streamline chat-bot creation for Mixer and Xbox Live users, facilitating user engagement and moderation on both platforms.
  - Created a moderator chat-bot, MOSSMO, integrating machine learning models to monitor overall chat sentiment and automatically report inappropriate behavior, demonstrating the SDK's capabilities.

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**: LaTeX, 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)