Tanvi Bajpai

PhD Candidate and Graduate Research Assistant

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RESEARCH OBJECTIVES

I work on designing and analyzing algorithmic systems to address social challenges such as fairness and governance. Broadly, my research interests lie at the intersection of algorithm design and social computing.

My **algorithm design** research centers around designing approximation algorithms. I primarily work on fair formulations of clustering and facility location problems.

My **social computing** research is on moderation in online communities and social networking sites (SNSs). My work spans traditional text-based SNS's (Reddit) as well as multi-modal platforms (Clubhouse, Discord, Spotify).

EDUCATION

- **University of Illinois at Urbana Champaign (UIUC)** — Urbana, IL
  Ph.D Candidate in Computer Science — *Aug. 2019 – May 2024 (Expected)*
  - Advisors: Prof. Chandra Chekuri and Prof. Eshwar Chandrasekharan

- **Carnegie Mellon University (CMU)** — Pittsburgh, PA
  B.S. in Computer Science (Additional Major in Discrete Math & Logic) — *Aug. 2015 – May. 2019*

PUBLICATIONS

- **Under Submission**

  - *Harmonizing the Cacophony: An Affordance-aware Framework of Audio-Based Social Platform Moderation.* **Tanvi Bajpai**, Drshika Asher, Anwesa Goswami, Eshwar Chandrasekharan (preprint)

- **Peer-Reviewed Conference Publications**

  - *Revisiting Priority k-Center: Fairness and Outliers.* **Tanvi Bajpai**, Deeparnab Chakrabarty, Chandra Chekuri, Maryam Negahbani (Appears in the International Colloquium on Automata, Languages and Programming 2021)

- **Peer-Reviewed Journal Publications**

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

HONORS AND AWARDS

Outstanding TA Award — Fall 2020
Award Amount: $200

- Given to five teaching assistants each semester. Teaching assistants are nominated by faculty members for their dedication to teaching.

K&L Gates Prize — 2019
Award Amount: $5,000

- University award for graduating senior who has best inspired fellow students at the university to love learning through a combination of intellect, high scholarly achievement, engagement with others and character.

CMU Women's Association Outstanding Graduating Senior Award — 2019
Award Amount: $1,500

- Award for graduating senior students, with a preference for students who demonstrate a commitment to the advancement of women in their academic pursuits.

Mark Stehlik Introductory & Service Teaching Award 2019
Award Amount: $400

- Award for graduating senior who brings their best and indispensible efforts to teaching introductory courses.

CMU Senior Leadership Recognition 2019

CMU University Honors 2019

Mark Stehlik SCS Alumni Undergraduate Impact Scholarship 2018
Scholarship Amount: $2,500

- Scholarship recognizes and supports CMU School of Computer Science undergraduates whose drive for excellence extends beyond the classroom - students who make a difference both in the field of computer science and the world around them.

EXPERIENCE

- **Illinois Secondary Teaching and Computer Science Initiative** Urbana, IL
  Course Designer and Instructor *Fall 2020 - present*
  - Designing and teaching discrete mathematics course for Illinois secondary school teachers as a part of a Computer Science accreditation program.

- **Microsoft** Redmond, WA
  Explorer Intern *Summer 2017*
  - Worked for the XBox Live Social team and their affiliate streaming platform Mixer. Developed a Node.js SDK to aid in chat-bot creation for Mixer and XBL users, and created a moderator chat-bot named MOSSMO that could monitor the overall sentiment of a chat and report users in order to demonstrate the SDK's functionality.

TEACHING

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

- **University of Illinois at Urbana-Champaign**

  - CS 374: Introduction to Algorithms and Models of Computation. Fall 2020[+], Fall 2021
  - CS 473: Algorithms. Spring 2020
  - CS 173: Discrete Structures. Fall 2019[+], Summer[+]
  - + - denotes semester placed on *Teachers Ranked as Excellent* list.

- **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 serving as Head Teaching Assistant.

STUDENTS MENTORED

- **Drshika Asher**, Summer 2021, CS Stars Fellowship Recipient

- **Anwesa Goswami**, Spring 2021

Service and Outreach

- **Reviewer**
  - *Operations Research Letters.* Journal, 2021

- **Outreach**
  - *Graduate Women in Computer Science (GradWCS) organization, Co-President.* UIUC, 2019 - 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

Technical Skills

- **Programming Languages**: Python, Java/Javascript, C/C++, OCaml, Processing, HTML/CSS

- **Technologies**: LaTeX, Jupyter Notebook, Pytorch