

KUNAL RELIA

Independent Scientist

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Rajkot, India

✉ kunal.relia91@gmail.com, krelia@nyu.edu

🌐 www.kunalrelia.com

EDUCATION

- 2022 **Ph.D., Computer Science**,
NYU Tandon School of Engineering, Brooklyn - USA.
Advisor: Julia Stoyanovich, Ph.D.
- 2016 **M.S., Computer Science**,
NYU Tandon School of Engineering, Brooklyn - USA.
- 2014 **B.E., Computer Engineering**,
Gujarat Technological University, Rajkot - India.

RESEARCH INTERESTS

Theoretical Computer Science, Algorithmic Fairness, Computational Social Choice, Responsible Data Science.

PROFESSIONAL EXPERIENCE

Research

- Jun 2022 - **Independent Scientist**.
Present Working on the evolution of DiRe Research Universe. Specifically, discovering an unconditional deterministic polynomial-time algorithm for the vertex cover problem on (unweighted simple) cubic bridgeless graphs, which is NP-complete. Project page: <https://kunalrelia.github.io/DRU/>
- Jun 2016 - **Research Assistant**, NYU Tandon School of Engineering, Brooklyn - USA.
- May 2022 Progressed towards formalizing the contradistinction between diversity and representation.

Non-research

- Sep 2015 - **Team Lead/Analyst**, NYU Office of Graduate Admissions, Brooklyn - USA.
- May 2016 Led a team of 21 graduate assistants; cut application processing time by 15% and augmented a transcript evaluation algorithm
- Sep 2015 - **Teaching Assistant**, NYU Tandon School of Engineering, Brooklyn - USA.
- Dec 2015 Assisted Prof. Viji Srinivasan (Computer Architecture 1)
- Jun 2010 - **Co-founder**, ReLife Pharma, Rajkot - India.
- Jan 2015 Co-founded a health care start-up manufacturing and marketing medicines in India
- Jul 2013 - **Software Developer Intern**, Johnson & Johnson Ltd., Rajkot - India.
- Jun 2014 Conceptualized and developed a claim management software capable of managing annual claims worth \$4.5M of company's 1000+ dealers. The prototype is still in use ten years later while withstanding a major taxation overhaul and multiple policy changes by the company.

AWARDS

School of Engineering Fellowship - NYU Tandon, 2017, 2019.

Graduate Scholarship - NYU Tandon, 2015.

Academic Excellence Award - GTU, 2014.

PUBLICATIONS

[C] : conference; [J] : journal.

* : authors listed alphabetically.

- [C6] **Kunal Relia**. “*DiRe Committee: Diversity and Representation Constraints in Multiwinner Elections*”. Proceedings of the 31st International Joint Conference on Artificial Intelligence, 2022 (IJCAI-22). [long oral](#)

Shorter version presented at the 8th International Workshop on Computational Social Choice (COMSOC) Poster Session, 2021.

- [J1*] Vishal Chakraborty, Theo Delemazure, Benny Kimelfeld, Phokion Kolaitis, **Kunal Relia**, and Julia Stoyanovich. “*Algorithmic Techniques for Necessary and Possible Winners*.” In ACM/IMS Transactions on Data Science (2021).
- [C5] **Kunal Relia**, Zhengyi Li, Stephanie H Cook, and Rumi Chunara. “*Race, Ethnicity and National Origin-based Discrimination in Social Media and Hate Crimes Across 100 U.S. Cities*.” Proceedings of the Thirteenth AAAI International Conference on Web and Social Media (ICWSM-2019).
Media: [Business Insider](#), [The Register](#), [VICE](#)
- [C4] Nabeel Abdur Rehman, **Kunal Relia**, and Rumi Chunara. “*Creating Full Individual-level Location Timelines from Sparse Social Media Data*.” ACM SIGSPATIAL GIS’18.
- [C3] **Kunal Relia**, Mohammad Akbari, Dustin Duncan, and Rumi Chunara. “*Socio-spatial Self-organizing Maps: Using Social Media to Assess Relevant Geographies for Exposure to Social Processes*.” Proceedings of the ACM on human-computer interaction 2, no. CSCW (2018).
- [C2] Mohammad Akbari, **Kunal Relia**, Anas Elghafari, and Rumi Chunara. “*From the User to the Medium: Neural Profiling Across Web Communities*.” Proceedings of the Twelfth AAAI International Conference on Web and Social Media (ICWSM-2018). (*poster*)
- [C1] Tom Huang, Anas Elghafari, **Kunal Relia**, and Rumi Chunara. “*High-resolution temporal representations of alcohol and tobacco behaviors from social media data*.” Proceedings of the ACM on human-computer interaction 1, no. CSCW (2017).

WORKING PAPERS

- [W4] **Kunal Relia**. “*On the Computational Complexity of the Vertex Cover Problem on Cubic Bridgeless Graphs*”, 2025. [in submission](#)

- [W3] **Kunal Relia**. “*On Efficient Computation of DiRe Committees*”, 2024.
- [W2] **Kunal Relia**. “*On the Complexity of Finding a Diverse and Representative Committee using a Monotone, Separable Positional Multiwinner Voting Rule*”, 2022.
- [W1] **Kunal Relia**. “*Fairly Allocating Utility in Constrained Multiwinner Elections*”, 2022.

MENTORING

2021 **Lauren Kirshenbaum**, NYU BS Student.

Eunice Son and Afifa Tanisa, NYU ARISE [†].

Afifa joined Columbia.

2020 **Raisa Bhuiyan and Rachel Rose**, NYU ARISE.

2019 **Kennan Gumbs and Heeyun Kim**, NYU ARISE.

Kennan joined MIT.

2018 **Zhengyi Li**, NYU BS student.

Subsequently team lead at Opine.

[†] : NYU ARISE (Applied Research Innovations in Science and Engineering) is a summer STEM research opportunity for 10th and 11th graders.

TALKS

2021 **COMSOC Seminar Series**, *Online International Seminar*.

2017 **Natural Language Processing (NLP) Community Reception**, NYU Center for Data Science, New York - USA.

COMMUNITY SERVICE

Academic

Program Committee AAAI (2021[‡], 2022, 2023), AAAI ICWSM (2020, 2021), AAAI/ACM AIES (2022).

Reviewing AAAI (2021, 2022, 2023), AAAI ICWSM (2020, 2021, 2022, 2023, 2024, 2025), AAAI/ACM AIES (2022), ACM CHI (2020, 2021, 2022, 2023, 2025[‡]), ACM CSCW (2019, 2020, 2021, 2022, 2023), NeurIPS Ethics (2024, 2025).

External Reviewing ACM WebSci (2020).

Selection Committee NYU ARISE (2020, 2021, 2022, 2023, 2024).

Organizing Committee NYU CSE Research Expo (2021).

Representative NYU CSE Ph.D. Students.

[‡] : Special Recognition.