

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.