

# Roie Levin

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Rutgers University  
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## Employment

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### **Rutgers University, Department of Computer Science**

*Assistant Professor.*

2024 - Present.

### **Tel Aviv University, Department of Statistics and Operations Research**

*Fulbright Postdoctoral Fellow.*

Hosted by Prof. Niv Buchbinder.

2022 - 2023.

## Education

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### **Carnegie Mellon University, Computer Science Department**

*Ph.D. in Algorithms, Combinatorics, and Optimization (ACO).*

Advised by Prof. Anupam Gupta.

Research Areas: Approximation, online, and streaming algorithms, especially for submodular optimization.

2017 - 2022.

### **Brown University**

*B.S. in Applied Math/Computer Science and B.S. in Math.*

2011 - 2015.

## Publications

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### **Refereed Papers**

(\*) denotes alphabetical author order.

### **Pairwise Independent Contention Resolution**

*IPCO 2024.*

(\*) Anupam Gupta, Jinqiao Hu, Gregory Kehne, and **Roie Levin**.

### **Set Covering with Our Eyes Wide Shut**

*SODA 2024.*

(\*) Anupam Gupta, Gregory Kehne, and **Roie Levin**.

### **Chasing Positive Bodies**

*FOCS 2023.*

(\*) Sayan Bhattacharya, Niv Buchbinder, **Roie Levin**, Thatchaphol Saranurak.

### **Competitive Algorithms for Block-Aware Caching**

*SPAA 2022.*

(\*) Christian Coester, **Roie Levin**, Joseph (Seffi) Naor, and Ohad Talmon.

### **Random Order Set Cover is as Easy as Offline**

*FOCS 2021.*

(\*) Anupam Gupta, Gregory Kehne, and **Roie Levin**.

### **Streaming Submodular Matching Meets the Primal-Dual Method**

*SODA 2021.* [Invited talk at Highlights of Algorithms 2021.](#)

(\*) **Roie Levin** and David Wajc.

### **Fully-Dynamic Submodular Cover with Bounded Recourse**

*FOCS 2020.*

(\*) Anupam Gupta and **Roie Levin**.

### **Finding Skewed Subcubes Under a Distribution**

*ITCS 2020.*

(\*) Parikshit Gopalan, **Roie Levin**, and Udi Wieder.

### **The Online Submodular Cover Problem**

*SODA 2020.*

(\*) Anupam Gupta and **Roie Levin**.

### **Robust Subspace Approximation in a Stream**

*NeurIPS 2018.* [Selected for spotlight presentation \( \$\sim 3\%\$  of submitted papers\).](#)

**Roie Levin**, Anish Sevekari and David Woodruff.

### **Beyond Sentential Semantic Parsing: Tackling the Math SAT with a Cascade of Tree Transducers**

*EMNLP 2017.*

Mark Hopkins, Cristian Petrescu-Prahova, **Roie Levin**, Ronan Le Bras, Alvaro Herrasti, and Vidur Joshi.

### **FigureSeer: Parsing Result-Figures in Research Papers**

*ECCV 2016.*

Noah Siegel, Zachary Horvitz, **Roie Levin**, Santosh Kumar Divvala, and Ali Farhadi.

## Unpublished

**PTAS for MAP Assignment on Pairwise Markov Random Fields in Planar Graphs**

*arXiv 1504.01311.*

(\*) Eli Fox-Epstein, **Roie Levin** and David Meierfrankenfeld.

## Research Visits ---

**University of Washington**

Seattle, Washington, August 2022.

**Hausdorff Research Institute for Mathematics**

*Trimester Program on Discrete Optimization* - Bonn, Germany, Fall 2021.

**Technion - Israel Institute of Technology**

*Host: Prof. Joseph (Seffi) Naor* - Haifa, Israel, Summer 2021.

**VMware Research Internship**

*Hosts: Dr. Parikshit Gopalan and Dr. Udi Wieder* - Palo Alto, CA, Summer 2019.

## Awards ---

**Fulbright Postdoctoral Fellowship**, 2022-2023.

**Israel Academy of Sciences and Humanities (IASH) Excellence Fellowship Program for International Postdoctoral Researchers**, 2022 (regretfully declined).

**NSF Graduate Research Fellowship Program – Honorable Mention**, 2019.

**CMU CSD Pradeep Sindhu Fellowship**, 2019.

**Brown University Senior Prize in Computer Science**, 2015.

Awarded for academic excellence and service to the department.

**International High School of San Francisco Valedictorian**, 2011.

## Teaching

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### **Carnegie Mellon University**

*Teaching Assistant* - Undergraduate Complexity (15-455). Fall 2020.

*Teaching Assistant* - Graduate Algorithms (15-750). Spring 2020.

### **Brown University**

*Head Teaching Assistant* - Models of Computation (CSCI 0510). Fall 2014.

*Teaching Assistant* - Models of Computation (CSCI 0510). Fall 2013.

*Teaching Assistant* - Accelerated Intro to CS (CSCI 0190). Fall 2012.

*Teaching Assistant* - Writing and Speaking French I (FREN 0500). Fall 2014, Spring 2015.

## Service

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Program Committees: APPROX 2024.

Conference Reviews: FOCS 2021, STOC 20[21-24], SODA 20[23-24], SOSA 2022, STACS 2023, APPROX 20[21,23]], ISIT 2021, ICALP 20[21-24], IPCO 20[21-22,24], ITCS 2024, ESA 20[18-21,23], SWAT 2022.

Journal Reviews: Mathematical Programming, IPL, JAIR, INFORMS Journal on Computing.

Rutgers PhD Admission Committee.

Co-organized CMU Theory Lunch invited speakers series. Spring 2018 - Fall 2018.

Graduate Student Mentor. Fall 2018.

## Other Positions

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### **The Allen Institute for Artificial Intelligence**

*Research Engineer/Predoctoral Fellow* - Project Euclid, under Prof. Mark Hopkins. August 2015 - May 2017.

### **Brown University**

*Undergraduate Research Assistant* - with Prof. Paul Valiant. Summer 2014.

### **Menta Capital**

*Research Intern* - Summer 2013.

## Talks

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**Chasing Positive Bodies**, Johns Hopkins Algorithms and Complexity Seminar, February 2024.

**Chasing Positive Bodies**, Brown Theory Seminar, January 2024.

**Chasing Positive Bodies**, Rutgers/DIMACS Theory of Computing Seminar, January 2024.

**Chasing Positive Bodies**, FOCS 2023.

**Decision Making Under Uncertainty**, Fulbright Post-Doctoral Seminar, July 2023.

**Chasing Positive Bodies**, Bar-Ilan University Theory Seminar, May 2023.

**Optimization When You Don't Know the Future**, Computer Science Department Colloquium, Rutgers University, April 2023.

**Online Covering: Secretaries, Prophets and Universal Maps**, Google Research Algorithms Seminar, February 2023.

**Online Covering: Secretaries, Prophets and Universal Maps**, MIT Algorithms and Complexity Seminar, February 2023.

**Online Covering: Secretaries, Prophets and Universal Maps**, NYU Theory Seminar, February 2023.

**Online Covering: Secretaries, Prophets and Universal Maps**, Algorithms Under Uncertainty Workshop at FSTTCS 2022, Chennai, India.

**Online Covering: Secretaries, Prophets and Universal Maps**, Tel Aviv University Algorithms Seminar, December 2022.

**Algorithms Under Uncertainty**, Fulbright Post-Doctoral Seminar, December 2022.

**Online Covering: Secretaries, Prophets and Universal Maps**, Tel Aviv University Algorithms Seminar, December 2022.

**Competitive Algorithms for Block-Aware Caching**, SPAA 2022.

**Submodular Optimization Under Uncertainty**, CMU, May 2022.

**Random Order Set Cover is as Easy as Offline**, CMU Theory Lunch, March 2022.

**Random Order Set Cover is as Easy as Offline**, FOCS 2021.

**Random Order Set Cover is as Easy as Offline**, Aalto University, Helsinki CS Theory Seminar, November 2021.

**Random Order Set Cover is as Easy as Offline**, HIM Trimester Program on Discrete Optimization, Workshop on Continuous Approaches to Discrete Optimization, October 2021.

**Submodular Optimization Under Uncertainty**, CMU, August 2021.

**Streaming Submodular Matching Meets the Primal-Dual Method**, HALG 2021.

**Streaming Submodular Matching Meets the Primal-Dual Method**, SODA 2021.

**Online and Dynamic Algorithms for Submodular Cover**, Google Research Algorithms Seminar, Dec 2020.

**Fully-Dynamic Submodular Cover with Bounded Recourse**, FOCS 2020.

**Fully-Dynamic Submodular Cover with Bounded Recourse**, CMU Theory Lunch, Oct 2020.

**Finding Skewed Subcubes Under a Distribution**, ITCS 2020.

**Finding Skewed Subcubes Under a Distribution**, VMWare Research, Aug 2019.

**The Online Submodular Cover Problem**, SODA 2020.

**The Online Submodular Cover Problem**, CMU Theory Lunch, Sep 2019.  
**The Online Submodular Cover Problem**, VMWare Research, July 2019.  
**Robust Subspace Approximation in a Stream**, Spotlight Presentation, NeurIPS 2018.

Languages \_\_\_\_\_

Fluent in English, Hebrew, French, and Mandarin.