

# Roie Levin

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Tel Aviv University  
Department of Statistics and Operations Research  
School of Mathematical Sciences  
Tel Aviv, Israel

roie.levin@gmail.com  
roielevin.com

## Education and Research Experience

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

*Fulbright Postdoctoral Fellow.*

Hosted by Prof. Niv Buchbinder.

2022 - 2024.

### **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.

### **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 \(~ 3% of submitted papers\).](#)  
**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### Unpublished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

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**Fulbright Postdoctoral Fellowship**, 2022-2024.

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

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

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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### **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.