Curriculum Vitae

Omrit Filtser

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Personal Details

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Education and Research Experience

2021-now: Lecturer of Computer Science at the Open University of Israel.

2019-2021:   Postdoc at Stony Brook University, hosted by Prof. Joseph S.B. Mitchell.

2014-2019:   PhD student in Computer Science, Ben-Gurion University of the Negev.
Advisor: Matthew J. Katz. Title: The Discrete Fréchet Distance and Applications.

2012-2014:   MSc in Computer Science (Summa cum Laude), Ben-Gurion University of the Negev.
Advisor: Matthew J. Katz. Title: The Discrete Fréchet Distance and Applications.

2009-2012:   BSc in Computer Science (Summa cum Laude), Ben-Gurion University of the Negev.

Honors and Awards

- The Israeli Council for Higher Education fellowship for postdoctoral women fellows, 2019.
- BGU scholarship for postdoctoral women fellows abroad, 2019.
- Eric and Wendy Schmidt Postdoctoral Award for Women in Mathematical and Computing Sciences, 2019-2020.
- Philippe Chaim Zabey Award for excellent Master Thesis, 2017.
- The Israeli Ministry of Science & Technology Scholarship for women in science (PhD students), 2015.
- Friedman Award for outstanding achievements in research, 2015.
- Dean's honor for excellent graduate students, 2015.
- Negev Scholarship for excellence in research, 2014.
- The Israeli Ministry of Science & Technology Scholarship for women in science (Master students), 2013.
- Martha and Solomon Scharf prize for excellent undergraduate, the elite scouting unit for Hi-Tech studies, 2010, 2011, 2012.
- Intel Award, 2012.
- Dean's honors for undergraduate students, 2011, 2012.
- Department's honors, 2010, 2011, 2012.

Program Committees

- **GeoMobility: Geometry and Mobility Mining Workshop.**
  Part of CGWeek 2021 (June 7 - 11).
- **WADS2023: 18th Algorithms and Data Structures Symposium.**
  July 31-August 2, 2023.

Publications

<u>Scientific Journals:</u>

- **Bipartite diameter and other measures under translation.**
  Boris Aronov, Omrit Filtser, Matthew J. Katz, and Khadijeh Sheikhan.
  Discrete & Computational Geometry (DCG), 2022.
- **Terrain-Like Graphs: PTASs for Guarding Weakly-Visible Polygons and Terrains.**
  Stav Ashur, Omrit Filtser, Matthew J. Katz, and Rachel Saban.
  Computational Geometry: Theory and Applications (CGTA), 2022.
- **A Constant-Factor Approximation Algorithm for Vertex Guarding a WV-Polygon.**
  Stav Ashur, Omrit Filtser, and Matthew J. Katz.
  Journal on Computational Geometry (JoCG), 2021.
- **Algorithms for the discrete Fréchet distance under translation.**
  Omrit Filtser and Matthew J. Katz.
  Journal of Computational Geometry (JoCG), 2020.
- **Universal approximate simplification under the discrete Fréchet distance.**
  Omrit Filtser.
  Information Processing Letters (IPL),2018.
- **Guarding orthogonal art galleries with sliding cameras.**
  Stephane Durocher, Omrit Filtser, Robert Fraser, Ali D. Mehrabi, Saeed Mehrabi.
  Computational Geometry: Theory and Applications (CGTA), 2017.
- **The Discrete and Semicontinuous Fréchet Distance with Shortcuts via Approximate Distance Counting and Selection.**
  Rinat Ben Avraham, Omrit Filtser, Haim Kaplan, Matthew J. Katz, Micha Sharir.
  ACM Transactions on Algorithms (TALG), 2015.

<u>Refereed Conferences - Published:</u>

- **On Flipping the Fréchet distance.**
  Omrit Filtser, Mayank Goswami, Joseph S. B. Mitchell, and Valentin Polishchuk.
  Innovations in Theoretical Computer (ITCS), 2023 (to appear).
- **Condorcet Relaxation in Spatial Voting.**
  Arnold Filtser and Omrit Filtser.
  AAAI Conference on Artificial Intelligence, 2021.
- **Static and Streaming Data Structures for Fréchet Distance Queries.**
  Arnold Filtser and Omrit Filtser.
  ACM-SIAM Symposium on Discrete Algorithms (SODA), 2021.
- **Approximate Nearest Neighbor for Curves --- Simple, Efficient, and Deterministic.**
  Arnold Filtser, Omrit Filtser and Matthew J. Katz.
  International Colloquium on Automata, Languages, and Programming (ICALP), 2020.
- **A Constant-Factor Approximation Algorithm for Vertex Guarding a WV-Polygon.**
  Stav Ashur, Omrit Filtser, and Matthew J. Katz.
  International Workshop on Approximation and Online Algorithms (WAOA), 2020.
- **Terrain-Like Graphs: PTASs for Guarding Weakly-Visible Polygons and Terrains.**
  Stav Ashur, Omrit Filtser, Matthew J. Katz, and Rachel Saban.
  International Workshop on Approximation and Online Algorithms (WAOA), 2019.
- **Efficient Nearest Neighbor Query and Clustering of Planar Curves.**
  Boris Aronov, Omrit Filtser, Michael Horton, Matthew J. Katz, and Khadijeh Sheikhan.
  Algorithms and Data Structures Symposium (WADS), 2019.
- **Bipartite diameter and other measures under translation.**
  Boris Aronov, Omrit Filtser, Matthew J. Katz, and Khadijeh Sheikhan.
  Symposium on Theoretical Aspects of Computer Science (STACS), 2019.

- **Algorithms for the discrete Fréchet distance under translation**.
  Omrit Filtser and Matthew J. Katz.
  Scandinavian Symposium and Workshops on Algorithm Theory (SWAT), 2018.
- **On the General Chain Pair Simplification Problem.**
  Chenglin Fan, Omrit Filtser, Matthew J. Katz, and Binhai Zhu.
  International Symposium on Mathematical Foundations of Computer Science (MFCS) 2016.
- **On the Chain Pair Simplification Problem.**
  Chenglin Fan, Omrit Filtser, Matthew J. Katz, Tim Wylie, and Binhai Zhu.
  Algorithms and Data Structures Symposium (WADS) 2015.
- **The Discrete Fréchet Distance with Shortcuts via Approximate Distance Counting and Selection Techniques.**
  Rinat Ben Avraham, Omrit Filtser, Haim Kaplan, Matthew J. Katz, and Micha Sharir.
  Symposium on Computational Geometry (SoCG) 2014.
- **A (7/2)-Approximation Algorithm for Guarding Orthogonal Art Galleries with Sliding Cameras.**
  Stephane Durocher, Omrit Filtser, Robert Fraser, Ali Mehrabi, and Saeed Mehrabi.
  Latin American Theoretical INformatics Symposium (LATIN) 2014.

Workshop publications:

- **On Minimum-Complexity Graph Simplification.**
  Omrit Filtser, Majid Mirzanezhad, and Carola Wenk.
  European Workshop on Computational Geometry, 2021.
- **Terrain-Like and Non-Jumping Graphs.**
  Stav Ashur, Omrit Filtser, and Rachel Saban.
  European Workshop on Computational Geometry, 2019.
- **Simple Rectilinear Polygons are Perfect under Rectangular Vision.**
  Esther Arkin, Michael Biro, Omrit Filtser, Matthew J. Katz, Joseph S.B. Mitchell, and Christiane Schmidt.
  Fall Workshop on Computational Geometry, 2013.

Submitted/in preparation:

- **A Tour of General Hanoi Graphs.**
  Daniel Berend, Liat Cohen and Omrit Filtser. (in preparation)

Presentations in conferences and invited talks:

- **How to Stay Socially Distant: A Geometric Approach**
  - *Computer science colloquium, The Open University of Israel, 9.3.22.*
  - *Computer science colloquium, Ariel University, 15.12.21.*
- **Proximity Search in Trajectory Data under the Fréchet Distance:**
  - *TCS Women Spotlight Workshop, Symposium on Theory of Computing, 22.6.21.*
- **Towards Efficient Processing of Trajectories and Other Geometric Objects:**
  - *Algorithms Seminar, Stony Brook University (NY), 12.3.21.*
- **Condorcet Relaxation in Spatial Voting:**
  - *AAAI Conference on Artificial Intelligence, 7.2.21.*
- **Static and Streaming Data Structures for Fréchet Distance Queries:**
  - *Computer science colloquium, Ben Gurion University, 24.11.20.*
  - *Computational Geometry Seminar, Tel-Aviv University, 9.12.20.*
  - *Symposium on Discrete Algorithms, 11.1.21.*

- o *Geometry Seminar, New York University, 16.2.21.*
- **Approximate Nearest Neighbor for Curves --- Simple, Efficient, and Deterministic***:*
  - o *International Colloquium on Automata, Languages, and Programming, 8.7.20.*
- **Similarity Under Translation:**
  - o *Algorithms Seminar, Stony Brook University (NY), 29.1.20.*
- **The Discrete Fréchet Distance and Applications:**
  - o *PhD talk, Computer science colloquium, Ben Gurion University, 26.3.19.*
  - o *Computer Science seminar, Holon Institute of Technology, 28.4.19.*
- **Bipartite diameter and other measures under translation:**
  - o *Symposium on Theoretical Aspects of Computer Science, 14.3.19.*
- **Algorithms for the discrete Fréchet distance under translation:**
  - o *Computational Geometry Seminar, Tel Aviv University, 27.12.17.*
  - o *Scandinavian Symposium and Workshops on Algorithm Theory, 18.6.18 .*
- **The Discrete Fréchet Gap:**
  - o *Young Researcher Workshop on Automata, Languages and Programming (Satellite Workshop of ICALP), 5.7.15.*
  - o *Research Seminar in Discrete and Computational Geometry, Ben-Gurion University, 11.11.15.*
- **The Discrete Fréchet Distance with Shortcuts:**
  - o *Research Seminar in Discrete and Computational Geometry, Ben-Gurion University, 2.12.13.*