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Education

- **Tel-Aviv University**

Tel-Aviv, Israel

- Ph.D. with Distinction (2008)
- Advisor: Prof. Micha Sharir
- Dissertation: *Geometric Arrangements: Substructures and Algorithms*

- **Tel-Aviv University**

Tel-Aviv, Israel

- M.Sc. Summa Cum Laude (2003)
- Advisor: Prof. Dan Halperin
- Thesis: *Robust and Efficient Boolean Operations on Planar Subdivisions*

- **Tel-Aviv University**

Tel-Aviv, Israel

- B.Sc., Magna Cum Laude, Statistics and Computer Science (1997)

Main Research Interests

- **Discrete Geometry**
- **Discrepancy Theory**
- **Combinatorics and Probability**
- **Geometric Optimization**
- **Empirical Processes**

Honors and Awards

- **Minerva Post-Doctoral Fellowship** 2008
The Minerva Fellowship Program,
Freie Universitt Berlin, Berlin, Germany
- **PIMS Post-Doctoral Fellowship** 2008
Algorithms and Complexity Theory Laboratory,
Simon Fraser University, Vancouver, British Columbia, Canada
- **IBM Ph.D. Fellowship** 2007
IBM Research

- **Deutsch Fellowship:**
Best Achievement Award in studies towards Ph.D. degree,
Tel-Aviv University

2005

Editorial Board

- 2014–2017 *Discrete & Computational Geometry (DCG)*
- 2014– *Journal of Computational Geometry (JoCG)*
- 2014– *Discrete Mathematics & Theoretical Computer Science (DMTCS)*

Grants

- **NSF CCF-1216689 AF: Small: Geometric Optimization via Combinatorial Geometry** 09/15/2012–11/30/2013, \$242,600, Single PI.
- **FP7-PEOPLE-2012-CIG Marie-Curie Action: "Career Integration Grants"** Optimization Problems on Geometric Range Spaces, 09/01/2014–08/31/2018, 100,000 EU, Single PI.

Program Committee

- *ACM-SIAM Symposium on Discrete Algorithms, 2016.*
- *European Symposia on Algorithms, 2015*
- *Fall Workshop on Computational Geometry, 2012.*
- *ACM-SIAM Symposium on Discrete Algorithms, 2010.*

Professional Activities

- Serve in an *NSF* Panel, 2013.

Journal Publications

- ***Improved Bound for the Union of Locally Fat Objects in the Plane***, (with Boris Aronov, Mark de Berg, Micha Sharir). *SIAM Journal of Computing*, 43(2):543–572 (2014)
- ***A New Approach to Active Learning Using Smooth Relative Regret Approximations with Applications***, (with Nir Ailon, Ron Begleiter). *Journal of Machine Learning Research*, 15:885–920 (2014)
- ***Convex Hull of Imprecise Points in $o(n \log n)$ Time after Preprocessing***, (with Wolfgang Mulzer). *Computational Geometry: Theory and Applications*, 46(4): 417–434 (2013) *Special Issue, selected papers of SOCG'2011.*
- ***Near-Linear Approximation Algorithms for Geometric Hitting Sets***, (with Pankaj Agarwal, Micha Sharir), *Algorithmica*, 63(1–2): 1–25 (2012).

- ***On the Union of Cylinders in Three Dimensions***, *Discrete and Computational Geometry*, 45(1):45–64, (2011); invited by editors.
- ***Weak ε -nets for Axis-Parallel Boxes in d -space***, *Information Processing Letters*, 110(18–19):835–840 (2010).
- ***Small-Size ε -Nets for Axis-Parallel Rectangles and Boxes***, (with Boris Aronov, Micha Sharir), *SIAM Journal of Computing*, 39(7):3248–3282 (2010).
- ***Almost Tight Bound for the Union of Fat Tetrahedra in Three Dimensions***, (with Micha Sharir), *Journal of the ACM*, 57(1), Article No. 2, 2009.
- ***On Regular Vertices on the Union of Planar Objects***, (with János Pach, Micha Sharir), *Discrete and Computational Geometry*, 41(2):216–231 (2009).
- ***On the ICP Algorithm***, (with Micha Sharir, Alon Efrat), *Computational Geometry: Theory and Applications*, 41(1-2):77–93 (2008). *Special Issue, selected papers of the 22th European Workshop of Computational Geometry (EWCG'2006)*, 2006.
- ***On a Single Cell in an Arrangement of Convex Polyhedra in \mathbb{R}^3*** , (with Micha Sharir), *Discrete and Computational Geometry*, 37:21–41 (2007). *Special Issue, selected papers of SOCG'2005*.
- ***Counting and Representing Intersections Among Triangles in Three Dimensions***, (with Micha Sharir), *Computational Geometry: Theory and Applications*, 32:196–215 (2005).
- ***Output-Sensitive Construction of the Union of Triangles***, (with Micha Sharir), *SIAM Journal of Computing*, 34(6) 1331–1351 (2005).
- ***Speeding Up the Incremental Construction of the Union of Geometric Objects in Practice***, (with Dan Halperin, Micha Sharir), *Computational Geometry: Theory and Applications*, 27:63–85 (2004). *Special Issue, selected papers of the 18th European Workshop of Computational Geometry (EWCG'2002)*, 2002.
- ***The Design and Implementation of Planar Maps in CGAL***, (with Eyal Flato, Dan Halperin, Iddo Hanniel, Oren Nechushtan), *ACM Journal of Experimental Algorithms*, 5: Article No. 13 (2000).

Conference Publications

- ***On the Beck-Fiala Conjecture for Random Set Systems***, (with Shachar Lovett). Submitted.
- ***Two Proofs for Shallow Packings***, (with Kunal Dutta, Arijit Ghosh), *Proceedings of Symposium on Computational Geometry (SOCG'2015)*, 2015, pp. 96–110. Also submitted to *Discrete and Computational Geometry, Special Issue, selected papers of SOCG'2015*.

- ***Data recovery after geographic correlated attacks***, (with Alon Efrat, Guy Grebla, Rom Pinchasi, and Swaminathan Sankararaman), *Proceedings of International Conference on the Design of Reliable Communication Networks (DRCN'2015)*, 2015, pp. 65–72.
- ***A Distributed Algorithm for Approximate Mobile Sensor Coverage***, (with Jie Gao, Jiemin Zeng), *Proceedings of the Canadian Conference on Computational Geometry (CCCG'2014)*, 2014, pp. 319–325.
- ***A Size-Sensitive Discrepancy Bound for Set Systems of Bounded Primal Shatter Dimension***, *Proceedings of the ACM-SIAM Symposium on Discrete Algorithms (SODA'2014)*, 2014, pp. 1378–1388. Also submitted to *SIAM Journal of Computing*.
- ***Relative (p, ε) -Approximations for Well-Behaved Range Spaces***, *Proceedings of the 29th Annual ACM Symposium on Computational Geometry, (SOCG'2013)*, 2013, pp. 233–242.
- ***A New Approach to Active Learning Using Smooth Relative Regret Approximations with Applications***, (with Nir Ailon, Ron Begleiter). *Proceedings of the 25th Conference on Learning Theory (COLT'2012)*, 2012, pp. 19.1–19.20. **Best student paper award.**
- ***Convex Hull of Imprecise Points in $o(n \log n)$ Time after Preprocessing***, (with Wolfgang Mulzer), *Proceedings of the 27th Annual ACM Symposium on Computational Geometry (SOCG'2011)*, 2011, pp. 11–20. *Special Issue, selected papers of SOCG'2011.*
- ***Improved Bound for the Union of Fat Triangles***, (with Boris Aronov, Micha Sharir), In *Proceedings of the ACM-SIAM Symposium on Discrete Algorithms (SODA'2011)*, pp. 1778–1785.
- ***Efficient Sensor Placement for Surveillance Problems***, (with Pankaj K. Agarwal, Shashidhara Ganjugunte), *Proceedings of the 5th IEEE International Conference on Distributed Computing in Sensor Systems (DCOSS '09)*, 2009, pp. 301–314. **Best paper award.**
- ***Near-Linear Approximation Algorithms for Geometric Hitting Sets***, (with Pankaj K. Agarwal, Micha Sharir), *Proceedings of the 25th Annual ACM Symposium on Computational Geometry (SOCG'2009)*, 2009, pp. 23–32.
- ***Small-Size ε -Nets for Axis-Parallel Rectangles and Boxes***, (with Boris Aronov, Micha Sharir), *Proceedings of the 41th ACM Symposium on Theory of Computing (STOC'2009)*, 2009, pp. 639–648.
- ***On the Union of Cylinders in Three Dimensions***, *Proceedings of the 49th Annual IEEE Symposium on Foundations of Computer Science (FOCS'2008)*, 2008, pp. 179–188.

- ***Almost Tight Bound for the Union of Fat Tetrahedra in Three Dimensions***, (with Micha Sharir), *Proceedings of the 48th Annual IEEE Symposium on Foundations of Computer Science (FOCS'2007)*, 2007, pp. 525–535.
- ***On Regular Vertices on the Union of Planar Objects***, (with János Pach, Micha Sharir), *Proceedings of the 23th Annual ACM Symposium on Computational Geometry (SOCG'2007)*, 2007, pp. 220–226.
- ***On the ICP Algorithm***, (with Micha Sharir, Alon Efrat), *Proceedings of the 22th Annual ACM Symposium on Computational Geometry (SOCG'2006)*, 2006, pp. 95–104.
- ***Almost Tight Bound for a Single Cell in an Arrangement of Convex Polyhedra in \mathbb{R}^3*** , *Proceedings of the 21th Annual ACM Symposium on Computational Geometry (SOCG'2005)*, 2005, pp. 22–31.
- ***Counting and Representing Intersections Among Triangles in Three Dimensions***, (with Micha Sharir), *Proceedings of the 20th Annual ACM Symposium on Computational Geometry (SOCG'2004)*, 2004, pp. 210–219.
- ***Output-Sensitive Construction of the Union of Triangles***, (with Micha Sharir), *Proceedings of the ACM-SIAM Symposium on Discrete Algorithms (SODA'2004)*, 2004, pp. 420–429.
- ***Speeding Up the Incremental Construction of the Union of Geometric Objects in Practice***, (with Dan Halperin, Micha Sharir), *Proceedings of the 10th European Symposium on Algorithms (ESA 2002)*, 2002, pp. 473–484.

Miscellaneous Publications

- ***On Dominating Sets for Pseudo-disks***, (with Boris Aronov and Anirudh Reddy Donakonda), *25th Fall Workshop on Computational Geometry (FWCG'15)*, 2015.
- ***Selective Sampling with Almost Optimal Guarantees for Learning to Rank from Pairwise Preferences***, (with Nir Ailon, Ron Begleiter), *NIPS Workshop on Choice Models and Preference Learning (CMPL'2011)*, 2011.
- ***Convex Hull of Imprecise Points in $o(n \log n)$ Time after Preprocessing***, (with Wolfgang Mulzer), *27th European Workshop of Computational Geometry (EWCG'2011)*, 2011.
- ***On the ICP Algorithm***, (with Micha Sharir, Alon Efrat), *22th European Workshop of Computational Geometry (EWCG'2006)*, 2006.
- ***Speeding Up the Incremental Construction of the Union of Geometric Objects in Practice***, (with Dan Halperin, Micha Sharir), *18th European Workshop of Computational Geometry (EWCG'2002)*, 2002.

Conference Talks and Invited Seminars

- ***Shallow Packings: Revisiting Haussler's Proof.*** Presented in Tel-Aviv University, New York University (Courant Institute), NYU-Poly, Georgia Tech.
- ***Geometric Discrepancy via the Entropy Method.*** Presented in SODA'14 Portland (Oregon), New York University (Courant Institute), Georgia Tech, the Technion, Tel-Aviv University, Hebrew University, Weizmann Institute, Columbia University, Princeton University, Rutgers University, Stony Brook University.
- ***Relative (p, ε) -Approximations for Well-Behaved Range Spaces.*** Presented in SOCG'13 Rio de Janeiro (Brazil), New York University (Courant Institute), Tel-Aviv University, Princeton University, Columbia University.
- ***On the Geometric Hitting Set Problem, ε -nets, and their Applications.*** Presented in Stevens Institute of Technology, CUNY Graduate Center, GeorgeTown University.
- ***Improved Bound for the Union of Fat Triangles.*** Presented at SODA'11 San-Francisco (CA), Dagstuhl (Germany), New York University (Courant Institute).
- ***Near-Linear Approximation Algorithms for Geometric Hitting Sets.*** Presented in SOCG'09 Aarhus (Denmark), Tel-Aviv University, Polytechnic Institute of NYU.
- ***Small-Size ε -Nets for Axis-Parallel Rectangles and Boxes.*** Presented in STOC'09 Bethesda (MD), Dagstuhl (Germany), New York University (Courant Institute), Duke University, Inria Nancy, Google Research Labs (NY), TTI Chicago.
- ***On the Union of Cylinders in Three Dimensions.*** Presented in FOCS'08 Philadelphia (PA), Oberwolfach (Germany), Google Research Labs (NY), Polytechnic University, Stony Brook University, CUNY Graduate Center, Duke University, Tel-Aviv University.
- ***Almost Tight Bound for the Union of Fat Tetrahedra in Three Dimensions.*** Presented in FOCS'07 Providence (RA), MIT, University of Stony Brook, Princeton University, AT&T Research Labs (NJ), New York University (Courant Institute), Polytechnic University, IBM Almaden Research Labs (CA), Stanford University (CA), Dagstuhl (Germany), IBM Haifa Research Labs (Israel), University of Haifa.
- ***On the ICP Algorithm.*** Presented in SOCG'06 - Sedona (Arizona), and EWCG'2006 - Delphi (Greece).
- ***On a Single Cell in an Arrangement of Convex Polyhedra in \mathbb{R}^3 .*** Presented in SOCG'05 - Pisa (Italy), and Nacsholim (Israel).
- ***Counting and Representing Intersections Among Triangles in Three Dimensions.*** Presented in SOCG'04 - Brooklyn (NY), and at the Technion.
- ***Output-Sensitive Construction of the Union of Triangles.*** Presented in SODA'04 - New Orleans (LA), Berkeley MSRI, and at the Technion.

- *Speeding Up the Incremental Construction of the Union of Geometric Objects in Practice*. Presented in ESA'02 - Rome (Italy), and EWCG'02 - Warsaw (Poland).

Work Experience

- **Georgia Institute of Technology** Jan 2015
Assistant Professor (Math department).
- **Polytechnic School of Engineering, New York University** Sep 2014–Dec 2014
Research Professor.
- **Courant Institute of Mathematical Sciences, NYU** Sep 2013–Aug 2014
Research Professor.
- **Courant Institute of Mathematical Sciences, NYU** Sep 2011–Aug 2013
Visiting Assistant Professor.
- **Courant Institute of Mathematical Sciences, NYU** Sep 2009–Aug 2011
Postdoctoral Researcher.
- **Duke University** Sep 2007–Aug 2009
Postdoctoral Researcher, hosted by Prof. Pankaj Agarwal.
Mentoring: Shashidhara Ganjugunte (PhD), Sharathkumar Raghvendra (PhD).
- **IBM Haifa Research Labs** Jul–Oct 2006
Summer internship with Shai Fine
 - Study $(1/r)$ -cuttings in computational geometry in the context of Program Verification. Design an efficient algorithm to the CNF-SAT problem, where the variables are halfspaces in \mathbb{R}^d .
- **IDF, Israel** 1997–2000
Algorithm developer and programmer in the area of GIS

Teaching Experience

- **Georgia Institute of Technology** Fall 2015
– Teaching *Discrete Math*.
- **Georgia Institute of Technology** Spring 2014
– Teaching *Applied Combinatorics*.
- **Courant Institute of Mathematical Sciences, NYU** Spring 2013
– Teaching *Basic Algorithms*.
- **Courant Institute of Mathematical Sciences, NYU** Spring–Fall 2012
– Teaching *Fundamental Algorithms*.

Courant Institute of Mathematical Sciences, NYU

Fall 2011

– Teaching *Basic Algorithms*.

• **Courant Institute of Mathematical Sciences, NYU**

Spring 2011

– Teaching *Fundamental Algorithms* (Recitations).

Personal

• Pregnancy and Child Birth

2011–2012

References

- Pankaj K. Agarwal** , Department of Computer Science, Duke University, Durham NC, USA. Phone: +1-919-660-6548. <http://www.cs.duke.edu/~pankaj/>
pankaj@cs.duke.edu
- Noga Alon** , School of Mathematics and Computer Science, Tel Aviv University, Tel Aviv Israel; Institute for Advanced Study , Princeton NJ, USA. Phone: +972-3-6408395.
<http://www.tau.ac.il/~nogaa/>
nogaa@post.tau.ac.il
- Sariel Har-Peled** , Department of Computer Science, University of Illinois Urbana, IL USA. Phone: +1-872-228-5497. <http://sarielhp.org/>
sariel@illinois.edu
- Michael Overton (Regarding teaching)** , Department of Computer Science, Courant Institute of Mathematical Sciences, New York University, NY, USA. Phone: +1-212-998-3121. <http://www.cs.nyu.edu/~overton/>
overton@cs.nyu.edu
- János Pach** , École polytechnique fédérale de Lausanne, EPFL, Switzerland; Courant Institute of Mathematical Sciences, New York University, NY, USA; Renyi Institute, Budapest, Hungary. Phone: +41-21-69-30331. <http://www.math.nyu.edu/~pach/>
pach@cims.nyu.edu
- Micha Sharir** , School of Computer Science, Tel Aviv University, Tel Aviv Israel; Courant Institute of Mathematical Sciences, New York University, NY, USA. Phone: +972-3-640-8804. <http://www.math.tau.ac.il/~michas/>
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