Sariel Har-Peled: Curriculum Vitæ

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1 Personal Data

Born: July 14, 1971, Jerusalem, Israel.
Citizenships: Israel, USA.

2 Education

1995–1999 Ph.D., Computer Science, Tel Aviv University, Israel
Research supervised by Prof. Micha Sharir
Thesis title: Geometric Approximation Algorithms and Randomized Algorithms for Planar Arrangements
Graduated with distinction.

1993–1995 M.Sc., Computer Science, Tel Aviv University, Israel
Graduated with honors *(Summa Cum Laude)*
Thesis title: The Complexity of Many Cells in the Overlay of Many Arrangements
Research supervised by Prof. Micha Sharir

1989–1993 B.Sc., Mathematics and Computer Science, Tel Aviv University, Israel
Graduated with honors *(Magna Cum Laude)*

3 Employment

2014–current Professor, CS UIUC.
2006–2014 Associate Professor, CS UIUC.
2000–2006 Assistant Professor, CS UIUC.
1999–2000 Post-Doctorate, Duke University.
1996–1999 Teaching Assistant, CS, Tel-Aviv University.
1993–1995 Programmer, Capella Computers Ltd, Israel.

4 Research

Interests: Discrete and computational geometry, geometric computing, computer graphics, randomized algorithms, approximation algorithms.

4.1 Grants

NSF Grant AF-1421231 (CCF) – $490,364
Towards better geometric algorithms: Summarizing, partitioning and shrinking data.
Start Date: September 1, 2014.
Period: 3 years.

NSF Grant AF-1217462 (CCF) – $489,194
EFFICIENT PROXIMITY AND SIMILARITY SEARCH IN COMPUTATIONAL GEOMETRY.
Start Date: September 1, 2012.
Period: 3 years.

NSF Grant AF-0915984 (CCF) – $410,000
APPROXIMATION, COVERING AND CLUSTERING IN COMPUTATIONAL GEOMETRY.
Date: September 1, 2009–August 31, 2013.
Period: 3 years.

NSF Career CCR-0132901 - $325,000
CAREER: APPROXIMATION ALGORITHMS FOR GEOMETRIC COMPUTING.
Start date: May 1, 2002.
Period: 5 years.

Misc. 50k in gift money from Cisco (got it together with Brighten Godfrey), and some money from MIT to support a post-doc.

4.2 Publications

4.2.1 Book

Har-Peled. *Geometric Approximation Algorithms*. Vol. 173. Math. Surveys & Monographs. Amer. Math. Soc., 2011.

4.2.2 Journal Papers

2016

1. Har-Peled. *Shortest path in a polygon using sublinear space*. *J. Comput. Geom.*, 7(2): 19–45, 2016.
2. Har-Peled, Nayyeri, Salavatipour, and Sidiropoulos. *How to walk your dog in the mountains with no magic leash*. *Discrete Comput. Geom.*, 55(1): 39–73, 2016.
3. Har-Peled, Kumar, Mount, and Raichel. *Space exploration via proximity search*. *Discrete Comput. Geom.*, 56(2): 357–376, 2016.
4. Chang, Har-Peled, and Raichel. *From proximity to utility: A voronoi partition of pareto optima*. *Discrete Comput. Geom.*, 56(3): 631–656, 2016.
5. Driemel, Har-Peled, and Raichel. *On the expected complexity of Voronoi diagrams on terrains*. *ACM Trans. Algo.*, 12(3): 37, 2016.
6. Agarwal, Aronov, Har-Peled, Phillips, Yi, and Zhang. *Nearest-neighbor searching under uncertainty II*. *ACM Trans. Algorithms*, 13(1): 3:1–3:25, 2016.

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7. Har-Peled and Raichel. *Net and prune: a linear time algorithm for euclidean distance problems*. *J. Assoc. Comput. Mach.*, 62(6): 44:1–44:35, 2015.
8. Har-Peled and Kumar. *Approximating minimization diagrams and generalized proximity search*. *SIAM J. Comput.*, 44(4): 944–974, 2015.
9. Har-Peled and Raichel. *On the complexity of randomly weighted Voronoi diagrams*. *Discrete Comput. Geom.*, 53(3): 547–568, 2015.
10. Cheong, Har-Peled, Kim, and Kim. *On the number of edges of fan-crossing free graphs*. *Algorithmica*, 73(4): 673–695, 2015.

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11. Har-Peled and Kumar. *Down the rabbit hole: robust proximity search in sublinear space*. *SIAM J. Comput.*, 43(4): 1486–1511, 2014.
12. Agarwal, Har-Peled, Kaplan, and Sharir. *Union of random Minkowski sums and network vulnerability analysis*. *Discrete Comput. Geom.*, 52(3): 551–582, 2014.

	13. Har-Peled and Raichel. *The Fréchet distance revisited and extended*. *ACM Trans. Algo.*, 10(1): 3:1–3:22, 2014. 14. Dumitrescu, Har-Peled, and Tóth. *Minimum convex partitions and maximum empty polytopes*. *J. Comput. Geom.*, 5(1): 86–103, 2014.
13	15. Driemel and Har-Peled. *Jaywalking your dog – computing the Fréchet distance with shortcuts*. *SIAM J. Comput.*, 42(5): 1830–1866, 2013. 16. Agarwal, Har-Peled, and Yu. *Embeddings of surfaces, curves, and moving points in Euclidean space*. *SIAM J. Comput.*, 2013. To appear. 17. Har-Peled and Kumar. *Approximate nearest neighbor search for low-dimensional queries*. *SIAM J. Comput.*, 42(1): 138–159, 2013. 18. Har-Peled and Lidicky. *Peeling the grid*. *SIAM J. Discrete Math.*, 27(2): 650–655, 2013.
12	19. Har-Peled, Indyk, and Motwani. *Approximate nearest neighbors: Towards removing the curse of dimensionality*. *Theory Comput.*, 8. Special issue in honor of Rajeev Motwani: 321–350, 2012. 20. Driemel, Har-Peled, and Wenk. *Approximating the Fréchet distance for realistic curves in near linear time*. *Discrete Comput. Geom.*, 48(1): 94–127, 2012. 21. Chan and Har-Peled. *Approximation algorithms for maximum independent set of pseudo-disks*. *Discrete Comput. Geom.*, 48(2): 373–392, 2012. 22. Chekuri, Clarkson, and Har-Peled. *On the set multi-cover problem in geometric settings*. *ACM Trans. Algo.*, 9(1): 9, 2012. 23. Har-Peled and Lee. *Weighted geometric set cover problems revisited*. *J. Comput. Geom.*, 3(1): 65–85, 2012. 24. Abam and Har-Peled. *New constructions of SSPDs and their applications*. *Comput. Geom. Theory Appl.*, 45(5–6): 200–214, 2012.
11	25. Har-Peled and Sharir. *Relativexxx (p, ε)-approximations in geometry*. *Discrete Comput. Geom.*, 45(3): 462–496, 2011.
2010	26. Agarwal, Har-Peled, Sharir, and Wang. *Hausdorff distance under translation for points and balls*. *ACM Trans. Algo.*, 6(4): 1–26, 2010.
09	27. de Berg, Cabello, and Har-Peled. *Covering many or few points with unit disks*. *Theory Comput. Syst.*, 45(3): 446–469, 2009.
08	28. Chen and Har-Peled. *The Euclidean orienteering problem revisited*. *SIAM J. Comput.*, 38(1): 385–397, 2008. 29. Aronov and Har-Peled. *On approximating the depth and related problems*. *SIAM J. Comput.*, 38(3): 899–921, 2008. 30. Agarwal, Har-Peled, and Yu. *Robust shape fitting via peeling and grating coresets*. *Discrete Comput. Geom.*, 39(1-3): 38–58, 2008.
07	31. Har-Peled and Kushal. *Smaller coresets for k-median and k-means clustering*. *Discrete Comput. Geom.*, 37(1): 3–19, 2007. 32. Cheong, Efrat, and Har-Peled. *On finding a guard that sees most and a shop that sells most*. *Discrete Comput. Geom.*, 37(4): 545–563, 2007. 33. Har-Peled. *How to get close to the median shape*. *Comput. Geom. Theory Appl.*, 36: 39–51, 2007.

06	34. Har-Peled and Mendel. *Fast construction of nets in low dimensional metrics, and their applications. SIAM J. Comput.*, 35(5): 1148–1184, 2006. 35. Erickson, Har-Peled, and Mount. *On the least median square problem. Discrete Comput. Geom.*, 36(4): 593–607, 2006. 36. Efrat and Har-Peled. *Guarding galleries and terrains. Inform. Process. Lett.*, 100(6): 238–245, 2006.
05	37. Carmi, Har-Peled, and Katz. *On the fermat-weber center of a convex object. Comput. Geom. Theory Appl.*, 2005. To appear. 38. Har-Peled and S. Mazumdar. *Fast algorithms for computing the smallest k-enclosing disc. Algorithmica*, 41(3): 147–157, 2005. 39. Agarwal, Har-Peled, Mustafa, and Wang. *Near-linear time approximation algorithms for curve simplification in two and three dimensions. Algorithmica*, 42: 203–219, 2005. 40. Carmi, Dolev, Har-Peled, Katz, and Segal. *Geographic quorum systems approximations. Algorithmica*, 41(4): 233–244, 2005. 41. Har-Peled and Sadri. *How fast is the k-means method? Algorithmica*, 41(3): 185–202, 2005. 42. Althaus, Funke, Har-Peled, Könemann, Ramos, and Skutella. *Approximating k-hop minimum-spanning trees. Oper. Res. Lett.*, 33(2): 115–120, 2005. 43. Agarwal, Graepel, Herbrich, Har-Peled, and Roth. *Generalization bounds for the area under the roc curve. J. Mach. Learn. Research*, 6: 393–425, 2005. 44. Har-Peled and Smorodinsky. *On conflict-free coloring of points and simple regions in the plane. Discrete Comput. Geom.*, 34(1): 47–70, 2005.
04	45. S. Har-Peled and Y. Wang. *Shape fitting with outliers. SIAM J. Comput.*, 33(2): 269–285, 2004. 46. Agarwal, Har-Peled, and Varadarajan. *Approximating extent measures of points. J. Assoc. Comput. Mach.*, 51(4): 606–635, 2004. 47. Har-Peled and Varadarajan. *High-dimensional shape fitting in linear time. Discrete Comput. Geom.*, 32(2): 269–288, 2004. 48. Erickson and Har-Peled. *Optimally cutting a surface into a disk. Discrete Comput. Geom.*, 31(1): 37–59, 2004. 49. Cheong, S. Har-Peled, Linial, and Matoušek. *The one-round Voronoi game. Discrete Comput. Geom.*, 31(1): 125–138, 2004. 50. Har-Peled. *Clustering motion. Discrete Comput. Geom.*, 31(4): 545–565, 2004.
03	51. Linhart, Halperin, Hanniel, and Har-Peled. *An experimental study of on-line methods for zone construction in arrangements of lines in the plane. Internat. J. Comput. Geom. Appl.*, 13(6): 463–485, 2003.
02	52. K. Agarwal, Har-Peled, and M. Karia. *Computing approximate shortest paths on convex polytopes. Algorithmica*, 33(2): 227–242, 2002. 53. Agarwal, de Berg, Har-Peled, Overmars, Sharir, and Vahrenhold. *Reporting intersecting pairs of convex polytopes in two and three dimensions. Comput. Geom. Theory Appl.*, 23(2): 195–207, 2002.

	54. Efrat, Guibas, Har-Peled, Mitchell, and Murali. *New similarity measures between polylines with applications to morphing and polygon sweeping.* *Discrete Comput. Geom.*, 28: 535–569, 2002.
01	55. Barequet and Har-Peled. *Efficiently approximating the minimum-volume bounding box of a point set in three dimensions.* *J. Algorithms*, 38(1): 91–109, 2001. 56. Barequet and Har-Peled. *Polygon containment and translational min-hausdorff-distance between segment sets are 3sum-hard.* *Internat. J. Comput. Geom. Appl.*, 11(4): 465–474, 2001. 57. Y. Afek, A. Bremler-Barr, and Har-Peled. *Routing with a clue.* *IEEE/ACM Transactions on Networking*, 9(6): 693–705, 2001. 58. Har-Peled and Sharir. *Online point location in planar arrangements and its applications.* *Discrete Comput. Geom.*, 26: 19–40, 2001.
2000	59. Agarwal, Guibas, Har-Peled, Rabinovitch, and Sharir. *Computing the penetration depth of two convex polytopes in 3d.* *Nordic J. Comput.*, 7(3): 227–240, 2000. 60. Har-Peled. *Constructing planar cuttings in theory and practice.* *SIAM J. Comput.*, 29(6): 2016–2039, 2000. 61. Har-Peled. *Taking a walk in a planar arrangement.* *SIAM J. Comput.*, 30(4): 1341–1367, 2000. 62. Agarwal, Aronov, Har-Peled, and Sharir. *Approximation and exact algorithms for minimum-width annuli and shells.* *Discrete Comput. Geom.*, 24(4): 687–705, 2000.
99	63. Har-Peled. *Approximate shortest paths and geodesic diameters on convex polytopes in three dimensions.* *Discrete Comput. Geom.*, 21: 216–231, 1999. 64. Har-Peled. *Constructing approximate shortest path maps in three dimensions.* *SIAM J. Comput.*, 28(4): 1182–1197, 1999. 65. Har-Peled. *Multicolor combination lemma.* *Comput. Geom. Theory Appl.*, 12: 155–176, 1999.
98	66. Har-Peled. *An output sensitive algorithm for discrete convex hulls.* *Comput. Geom. Theory Appl.*, 10: 125–138, 1998.
1997	67. Agarwal, Har-Peled, Sharir, and Varadarajan. *Approximate shortest paths on a convex polytope in three dimensions.* *J. Assoc. Comput. Mach.*, 44: 567–584, 1997.

4.2.3 Survey

Agarwal, Har-Peled, and Varadarajan. *Geometric Approximation via Coresets.* *Combinatorial and Computational Geometry.* Math. Sci. Research Inst. Pub. Cambridge, 2005.

4.2.4 Refereed Conferences

(Numbers on the right, colored in red, are acceptance rate.)

2017	1. Har-Peled and Mahabadi. *Proximity in the age of distraction: robust approximate nearest neighbor search.* *Proc. 28th ACM-SIAM Sympos. Discrete Algs.* (SODA), 1–15, eprint: `http://epubs.siam.org/doi/pdf/10.1137/1.9781611974782.1`.	
16	2. Blum, Har-Peled, and Raichel. *Sparse approximation via generating point sets.* *Proc. 27th ACM-SIAM Sympos. Discrete Algs.* (SODA), SIAM,, 548–557, 2016.	28%

	3. Har-Peled, Kaplan, and Sharir. *Approximating the k-level in three-dimensional plane arrangements*. *Proc. 27th ACM-SIAM Sympos. Discrete Algs.* (SODA), SIAM„ 1193–1212, 2016.	28%
	4. Bhattiprolu and Har-Peled. *Separating a Voronoi diagram via local search*. *Proc. 32nd Int. Annu. Sympos. Comput. Geom.* (SoCG), vol. 51. LIPIcs. Schloss Dagstuhl - Leibniz-Zentrum fuer Informatik, 18:1–18:16, 2016.	38%
	5. Har-Peled, Indyk, Mahabadi, and Vakilian. *Towards tight bounds for the streaming set cover problem*. *Proc. 35th ACM Sympos. Principles Database Syst.* (PODS), ACM„ 371–383, 2016.	32%
15	6. Har-Peled and Quanrud. *Approximation algorithms for polynomial-expansion and low-density graphs*. *Proc. 23nd Annu. Euro. Sympos. Alg.* (ESA), vol. 9294. Lect. Notes in Comp. Sci. 717–728, 2015.	26%
	7. Chang, Har-Peled, and Raichel. *From proximity to utility: A Voronoi partition of Pareto optima*. *Proc. 31st Int. Annu. Sympos. Comput. Geom.* (SoCG), vol. 34. LIPIcs. 689–703, 2015.	39%
	8. Har-Peled. *Shortest path in a polygon using sublinear space*. *Proc. 31st Int. Annu. Sympos. Comput. Geom.* (SoCG), vol. 34. LIPIcs. 111–125, 2015.	39%
	9. Har-Peled, Kumar, Mount, and Raichel. *Space exploration via proximity search*. *Proc. 31st Int. Annu. Sympos. Comput. Geom.* (SoCG), vol. 34. LIPIcs. 374–389, 2015.	39%
14	10. Har-Peled and Kumar. *Robust proximity search for balls using sublinear space*. *Proc. 34th Conf. Found. Soft. Tech. Theoret. Comput. Sci.* (FSTTCS), vol. 29. LIPIcs. 315–326, 2014.	29%
	11. Har-Peled and Roy. *Approximating the maximum overlap of polygons under translation*. *Proc. 22nd Annu. Euro. Sympos. Alg.* (ESA), vol. 8737. Lect. Notes in Comp. Sci. Springer, 542–553, 2014.	26%
	12. Agarwal, Har-Peled, Suri, and amd W. Zhang. *Convex hulls under uncertainty*. *Proc. 22nd Annu. Euro. Sympos. Alg.* (ESA), 37–48, 2014.	26%
	13. Har-Peled. *Quasi-polynomial time approximation scheme for sparse subsets of polygons*. *Proc. 30th Annu. Sympos. Comput. Geom.* (SoCG), 120–129, 2014.	35%
	14. Har-Peled and Raichel. *On the complexity of randomly weighted Voronoi diagrams*. *Proc. 30th Annu. Sympos. Comput. Geom.* (SoCG), 232–241, 2014.	35%
13	15. Har-Peled and Kumar. *Approximating minimization diagrams and generalized proximity search*. *Proc. 54th Annu. IEEE Sympos. Found. Comput. Sci.* (FOCS), 717–726, 2013.	28%
	16. Cheong, Har-Peled, Kim, and Kim. *On the number of edges of fan-crossing free graphs*. *Proc. 24th Annu. Internat. Sympos. Algorithms Comput.* (ISAAC), 163–173, 2013.	38%
	17. Agarwal, Aronov, Har-Peled, Phillips, Yi, and Zhang. *Nearest neighbor searching under uncertainty II*. *Proc. 32nd ACM Sympos. Principles Database Syst.* (PODS), 115–126, 2013.	25%
	18. Har-Peled and Raichel. *Net and prune: a linear time algorithm for Euclidean distance problems*. *Proc. 45th Annu. ACM Sympos. Theory Comput.* (STOC), ACM„ 605–614, 2013.	28%

	19. Har-Peled, Indyk, and Sidiropoulos. *Euclidean spanners in high dimensions. Proc. 24rd ACM-SIAM Sympos. Discrete Algs.* (SODA), 804–809, 2013.	30%
12	20. Har-Peled and Kumar. *Down the rabbit hole: robust proximity search in sublinear space. Proc. 53rd Annu. IEEE Sympos. Found. Comput. Sci.* (FOCS), 430–439, 2012.	32%
	21. Ene, Har-Peled, and Raichel. *Geometric packing under non-uniform constraints. Proc. 28th Annu. Sympos. Comput. Geom.* (SoCG), 11–20, 2012.	35%
	22. Har-Peled, Nayyeri, Salavatipour, and Sidiropoulos. *How to walk your dog in the mountains with no magic leash. Proc. 28th Annu. Sympos. Comput. Geom.* (SoCG), 121–130, 2012.	35%
	23. Driemel, Har-Peled, and Raichel. *On the expected complexity of Voronoi diagrams on terrains. Proc. 28th Annu. Sympos. Comput. Geom.* (SoCG), ACM„ 101–110, 2012.	35%
	24. Driemel and Har-Peled. *Jaywalking your dog – computing the Fréchet distance with shortcuts. Proc. 23rd ACM-SIAM Sympos. Discrete Algs.* (SODA), 318–337, 2012.	27%
	25. Dumitrescu, Har-Peled, and Tóth. *Minimum convex partitions and maximum empty polytopes. Proc. 13th Scand. Workshop Algorithm Theory* (SWAT), vol. 7357. Lect. Notes in Comp. Sci. 213–224, 2012.	26.8%
11	26. Agarwal, Godfrey, and Har-Peled. *Approximate distance queries and compact routing in sparse graphs. Proc. 30th Ann. Joint Conf. IEEE Comp. and Comm. Soc.* (INFOCOM), 1754–1762, 2011.	16%
	27. Har-Peled and Raichel. *The Fréchet distance revisited and extended. Proc. 27th Annu. Sympos. Comput. Geom.* (SoCG), ACM„ 448–457, 2011.	38%
	28. Cook, Driemel, Har-Peled, Sherette, and Wenk. *Computing the Fréchet distance between folded polygons. Proc. 12th Workshop Algorithms Data Struct.* (WADS), 267–278, 2011.	42%
	29. Har-Peled and Kumar. *Approximate nearest neighbor search for low dimensional queries. Proc. 22nd ACM-SIAM Sympos. Discrete Algs.* (SODA), 854–867, 2011.	30%
2010	30. Abam and Har-Peled. *New constructions of SSPDs and their applications. Proc. 26th Annu. Sympos. Comput. Geom.* (SoCG), 192–200, 2010.	32%
	31. Driemel, Har-Peled, and Wenk. *Approximating the Fréchet distance for realistic curves in near linear time. Proc. 26th Annu. Sympos. Comput. Geom.* (SoCG), 365–374, 2010.	32%
09	32. Chan and Har-Peled. *Approximation algorithms for maximum independent set of pseudo-disks. Proc. 25th Annu. Sympos. Comput. Geom.* (SoCG), 333–340, 2009.	26%
	33. Chekuri, Clarkson., and Har-Peled. *On the set multi-cover problem in geometric settings. Proc. 25th Annu. Sympos. Comput. Geom.* (SoCG), 341–350, 2009.	26%
08	34. Har-Peled and Muthukrishnan. *Range medians. Proc. 16th Annu. Euro. Sympos. Alg.* (ESA), 503–514, 2008.	34%
07	35. Aronov, Har-Peled, and Sharir. *On approximate halfspace range counting and relative epsilon-approximations. Proc. 23rd Annu. Sympos. Comput. Geom.* (SoCG), 327–336, 2007.	32%

	36. Agarwal, Har-Peled, and Yu. *Embeddings of surfaces, curves, and moving points in Euclidean space*. *Proc. 23rd Annu. Sympos. Comput. Geom.* (SoCG), 381–389, 2007.	32%
	37. Har-Peled, Roth, and Zimak. *Maximum margin coresets for active and noise tolerant learning. Proc. 21st Int. Joint Conf. Art. Intell.* (IJCAI), 836–841, 2007.	15.6%
06	38. Har-Peled. *How to get close to the median shape*. *Proc. 22nd Annu. Sympos. Comput. Geom.* (SoCG), 402–410, 2006.	39%
	39. Chen and Har-Peled. *The orienteering problem in the plane revisited*. *Proc. 22nd Annu. Sympos. Comput. Geom.* (SoCG), 247–254, 2006.	39%
	40. Agarwal, Har-Peled, and Yu. *Robust shape fitting via peeling and grating coresets. Proc. 17th ACM-SIAM Sympos. Discrete Algs.* (SODA), 182–191, 2006.	31%
	41. Aronov, Har-Peled, Knauer, Wang, and Wenk. *Fréchet distance for curves, Revisited. Proc. 14th Annu. Euro. Sympos. Alg.* (ESA), 52–63, 2006.	24%
	42. de Berg, Cabello, and Har-Peled. *Covering many or few points with unit disks. Proc. 4th Work. Approx. Online Alg.* (WAOA), vol. 4368. Lect. Notes in Comp. Sci. Springer, 55–68, 2006.	26%
	43. Har-Peled. *Coresets for discrete integration and clustering. Proc. 26th Conf. Found. Soft. Tech. Theoret. Comput. Sci.* (FSTTCS), 33–44, 2006.	22%
05	44. Har-Peled and Mendel. *Fast construction of nets in low dimensional metrics, and their applications*. *Proc. 21st Annu. Sympos. Comput. Geom.* (SoCG), http://sarielhp.org/p//04/lipschitz. 150–158, 2005.	29%
	45. Har-Peled and Üngör. *A time-optimal Delaunay refinement algorithm in two dimensions*. *Proc. 21st Annu. Sympos. Comput. Geom.* (SoCG), 228–236, 2005.	29%
	46. Har-Peled and Kushal. *Smaller coresets for k-median and k-means clustering. Proc. 21st Annu. Sympos. Comput. Geom.* (SoCG), 126–134, 2005.	29%
	47. Aronov and Har-Peled. *On approximating the depth and related problems. Proc. 16th ACM-SIAM Sympos. Discrete Algs.* (SODA), 886–894, 2005.	28%
	48. Har-Peled and Sadri. *How fast is the k-means method? Proc. 16th ACM-SIAM Sympos. Discrete Algs.* (SODA), 877–885, 2005.	28%
	49. Efrat, Har-Peled, and Mitchell. *Approximation algorithms for location problems in sensor networks. Proc. 2nd Int. Conf. Broadband Networks* (BROADNETS), IEEE,, 767–776, 2005.	49%
	50. Agarwal, Har-Peled, and Roth. *A uniform convergence bound for the area under the ROC curve. Tenth Inter. Work. Artif. Intell. Stat.* (AISTAT), Soc. Artif. Intel. Stats., 1–8, 2005.	39%
04	51. Har-Peled. *No coreset, no cry*. *Proc. 24th Conf. Found. Soft. Tech. Theoret. Comput. Sci.* (FSTTCS), Springer-Verlag, 324–335, 2004.	22%
	52. Erickson, Har-Peled, and Mount. *On the least median square problem. Proc. 20th Annu. Sympos. Comput. Geom.* (SoCG), 273–279, 2004.	33%
	53. Har-Peled and S. Mazumdar. *Coresets for k-means and k-median clustering and their applications*. *Proc. 36th Annu. ACM Sympos. Theory Comput.* (STOC), ACM,, 291–300, 2004.	26%

	54. Cheong, Efrat, and Har-Peled. *On finding a guard that sees most and a shop that sells most*. *Proc. 15th ACM-SIAM Sympos. Discrete Algs.* (SODA), 1091–1100, 2004.	30%
03	55. Har-Peled and S. Mazumdar. *Fast algorithms for computing the smallest k-enclosing disc*. *Proc. 11th Annu. Euro. Sympos. Alg.* (ESA), vol. 2832. Lect. Notes in Comp. Sci. Springer-Verlag, 278–288, 2003.	39%
	56. Har-Peled, Koltun, Song, and Goldberg. *Efficient algorithms for shared camera control*. *Proc. 19th Annu. Sympos. Comput. Geom.* (SoCG), 68–77, 2003.	36%
	57. Har-Peled and Smorodinsky. *On conflict-free coloring of points and simple regions in the plane*. *Proc. 19th Annu. Sympos. Comput. Geom.* (SoCG), 114–123, 2003.	36%
	58. Har-Peled and Wang. *Shape fitting with outliers*. *Proc. 19th Annu. Sympos. Comput. Geom.* (SoCG), 29–38, 2002.	36%
	59. S. Har-Peled and Varadarajan. *High-dimensional shape fitting in linear time*. *Proc. 19th Annu. Sympos. Comput. Geom.* (SoCG), 39–47, 2003.	36%
	60. Agarwal, Har-Peled, Sharir, and Wang. *Hausdorff distance under translation for points, disks, and balls*. *Proc. 19th Annu. Sympos. Comput. Geom.* (SoCG), 282–291, 2003.	36%
02	61. Agarwal, Har-Peled, Mustafa, and Wang. *Near-linear time approximation algorithms for curve simplification*. *Proc. 10th Annu. Euro. Sympos. Alg.* (ESA), 29–41, 2002.	37%
	62. Erickson and Har-Peled. *Optimally cutting a surface into a disk*. *Proc. 18th Annu. Sympos. Comput. Geom.* (SoCG), 244–253, 2002.	34%
	63. Har-Peled and Varadarajan. *Projective clustering in high dimensions using core-sets*. *Proc. 18th Annu. Sympos. Comput. Geom.* (SoCG), 312–318, 2002.	34%
	64. Cheong, Har-Peled, Linial, and Matoušek. *The one-round Voronoi game*. *Proc. 18th Annu. Sympos. Comput. Geom.* (SoCG), 97–101, 2002.	34%
	65. Bădoiu, Har-Peled, and Indyk. *Approximate clustering via coresets*. *Proc. 34th Annu. ACM Sympos. Theory Comput.* (STOC), 250–257, 2002.	32%
	66. Garg, Har-Peled, and Roth. *On generalization bounds, projection profile, and margin distribution*. *Proc. 19th Int. Conf. Mach. Learning* (ICML), 171–178, 2002.	33%
	67. Har-Peled, Roth, and Zimak. *Constraint classification for multiclass classification and ranking*. *Neural Info. Proc. Sys.* (NIPS),	31%
	68. Har-Peled, Roth, and Zimak. *Constraint classification: a new approach to multi-class classification*. *Proc. 13th Int. Conf. Alg. Learning Theory* (ALT), 365–379, 2002.	53%
	69. Procopiuc, Agarwal, and S. Har-Peled. *STAR-Tree: an efficient self-adjusting index for moving objects*. *Proc. 4th Workshop Algorithm Eng. Exper.*, vol. 2409. Lect. Notes in Comp. Sci. 178–193, 2002.	44%
	70. Efrat and Har-Peled. *Guarding galleries and terrains*. *2nd IFIP Internat. Conf. Theo. Comp. Sci.*: 181–192, 2002.	52%
01	71. Har-Peled. *A practical approach for computing the diameter of a point-set*. *Proc. 17th Annu. Sympos. Comput. Geom.* (SoCG), 177–186, 2001.	40%
	72. Har-Peled. *A replacement for Voronoi diagrams of near linear size*. *Proc. 42nd Annu. IEEE Sympos. Found. Comput. Sci.* (FOCS), 94–103, 2001.	29%

	73. Har-Peled. *Clustering motion. Proc. 42nd Annu. IEEE Sympos. Found. Comput. Sci.* (FOCS), IEEE Computer Society, 84–93, 2001.	29%
	74. Har-Peled and Varadarajan. *Approximate shape fitting via linearization. Proc. 42nd Annu. IEEE Sympos. Found. Comput. Sci.* (FOCS), 66–73, 2001.	29%
	75. Agarwal and Har-Peled. *Maintaining the approximate extent measures of moving points. Proc. 12th ACM-SIAM Sympos. Discrete Algs.* (SODA), 148–157, 2001.	42%
	76. Har-Peled and Sharir. *On-line point location in planar arrangements and its applications. Proc. 12th ACM-SIAM Sympos. Discrete Algs.* (SODA), 57–66, 2001.	42%
	77. Efrat, Guibas, Har-Peled, and Murali. *Morphing between polylines. Proc. 12th ACM-SIAM Sympos. Discrete Algs.* (SODA), 680–689, 2001.	42%
	78. Agarwal, de Berg, Har-Peled, Overmars, Sharir, and Vahrenhold. *Reporting intersecting pairs of polytopes in two and three dimensions. Proc. 7th Workshop Algorithms Data Struct.* (WADS), vol. 2125. Lect. Notes in Comp. Sci. 122–134, 2001.	45%
2000	79. Agarwal, Har-Peled, and Karia. *Computing approximate shortest paths on convex polytopes. Proc. 16th Annu. Sympos. Comput. Geom.* (SoCG), 270–279, 2000.	34%
	80. Har-Peled and Indyk. *When crossings count – approximating the minimum spanning tree. Proc. 16th Annu. Sympos. Comput. Geom.* (SoCG), 166–175, 2000.	34%
	81. Efrat, Guibas, Har-Peled, Lin, Mitchell, and Murali. *Sweeping simple polygons with a chain of guards. Proc. 11th ACM-SIAM Sympos. Discrete Algs.* (SODA), 927–936, 2000.	37%
	82. Agarwal, Guibas, Har-Peled, Rabinovitch, and Sharir. *Computing the penetration depth of two convex polytopes in 3d. Proc. 7th Scand. Workshop Algorithm Theory* (SWAT), 328–338, 2000.	41%
99	83. Har-Peled. *Taking a walk in a planar arrangement. Proc. 40th Annu. IEEE Sympos. Found. Comput. Sci.* (FOCS), 100–110, 1999.	31%
	84. Bremler-Barr, Afek, and Har-Peled. *Routing with a clue. Ann. Conf. on Data Comm. (SIGCOMM),* 203–214, 1999.	13%
	85. Agarwal, Aronov, Har-Peled, and Sharir. *Approximation and exact algorithms for minimum-width annuli and shells. Proc. 15th Annu. Sympos. Comput. Geom.* (SoCG), 380–389, 1999.	44%
	86. Barequet and Har-Peled. *Efficiently approximating the minimum-volume bounding box of a point set in three dimensions. Proc. 10th ACM-SIAM Sympos. Discrete Algs.* (SODA), 82–91, 1999.	≈30%
	87. Barequet and Har-Peled. *Polygon-containment and translational min-Hausdorff-distance between segment sets are 3SUM-hard. Proc. 10th ACM-SIAM Sympos. Discrete Algs.* (SODA), 862–863, 1999.	51%
	88. Aharoni, Halperin, Hanniel, Har-Peled, and Linhart. *On-line zone construction in arrangements of lines in the plane. Proc. 3rd Workshop Alg. Eng.* (WAE), 139–153, 1999.	52%
98	89. Andrzejak, Aronov, Har-Peled, Seidel, and Welzl. *Results on k-sets and j-facets via continuous motion arguments. Proc. 14th Annu. Sympos. Comput. Geom.* (SoCG), 192–199, 1998.	44%

	90. Efrat and Har-Peled. *Fly cheaply: on the minimum fuel consumption problem. Proc. 14th Annu. Sympos. Comput. Geom.* (SoCG), 143–145, 1998.	44%
	91. Har-Peled. *Constructing approximate shortest path maps in three dimensions. Proc. 14th Annu. Sympos. Comput. Geom.* (SoCG), 383–391, 1998.	44%
	92. Har-Peled. *Constructing cuttings in theory and practice. Proc. 14th Annu. Sympos. Comput. Geom.* (SoCG), 327–336, 1998.	35%
	93. Har-Peled. *An output sensitive algorithm for discrete convex hulls. Proc. 14th Annu. Sympos. Comput. Geom.* (SoCG), 357–364, 1998.	35%
97	94. Har-Peled. *Approximate shortest paths and Geodesic diameters on convex polytopes in three dimensions. Proc. 13th Annu. Sympos. Comput. Geom.* (SoCG), 359–365, 1997.	29%
96	95. Har-Peled, Sharir, and Varadarajan. *Approximate shortest paths on a convex polytope in three dimensions. Proc. 12th Annu. Sympos. Comput. Geom.* (SoCG), 329–338, 1996.	42%

5 Invited talks

1. *Beyond planarity: On geometric intersection graphs*, **Invited talk** in SODA 2016. Slides and youtube video here: http://sarielhp.org/research/talks/16/01_soda/.
2. *Quasi-Polynomial Time Approximation Scheme for Sparse Subsets of Polygons.* Discrete math seminar, KAIST, Korea. June 2, 2014.
3. *Net & Prune: A linear time algorithm for Euclidean distance problems.* Seminar in TU Eindhoven, Netherlands. September 18, 2013.
4. *Net & Prune: A linear time algorithm for Euclidean distance problems.* Seminar in Duke University. February 26, 2013.
5. *Net & Prune: A linear time algorithm for Euclidean distance problems.* Theory lunch, CMU. November 14, 2012.
6. *Finding haystacks (and similar structures) in geometry.* Workshop: Barriers in Computational Complexity II. Princeton, NJ. August 29, 2010.
7. *Summer school - lectured on coresets.* Madalgo, Aarhus, Denmark. August 16-19, 2010.
8. *Finding haystacks (and similar structures) in geometry.* In SharirFest, Tel-Aviv University. May 23, 2010.
9. *Approximating the Fréchet Distance for Realistic Curves in Near Linear Time.* Discrete & Computational Geometry Day. January 6, 2010, Ben-Gurion University.
10. *On set cover in geometric settings.* Algorithmic and Combinatorial Geometry, Budapest, June 15–19, 2009.
11. *Embeddings of Surfaces, Curves, and Moving Points in Euclidean Space.* Seminar in Yahoo (bay area). June 2007.
12. *On low dimensional coresets.* Seminar in University of Florida. March 2006.
13. *On Coresets and Shape Fitting in High Dimensions.* Seminar in CalTech. March 2005.
14. *Coresets.* Spring school as part of EuroCG, TU Eindhoven. March 7, 2005.

6 Students

6.1 Currently advising

(A) Kent Quanrud (shared with Chandra Chekuri), 2018.

(B) Jones Mitchell (first year), 2021.

6.2 Students advised

PhD:

(A) Benjamin Raichel, faculty (UT Dallas), 2015.
(B) Nirman Kumar, faculty (Memphis), 2014.
(C) Ke Chen, Pinterest. 2007.
(D) Dav Zimak (co-advised unofficially), youtube, 2007.

I also collaborated extensively with several students outside UIUC:

(A) Anne Driemel (TU Eindhoven), September 2013. Postdoc in TU Dortmund.
(B) Yusu Wang (Duke), 2004. Associate professor in Columbus, Ohio.

MS:

(A) Ben Miller (MS).
(B) Benjamin Raichel (MS).
(C) Bardia Sadri (MS).

Undergrad:

(A) Vijay Bhattiprolu (undergrad), admitted to CS CMU, 2014.

7 Teaching

Year	Fall	Spring
16/17	Sabbatical	
15/16	473 Algorithms	Paternity leave
14/15	573 Algorithms	473 Algorithms
13/14	573 Algorithms	574 Randomized Algorithms
12/13	573 Algorithms	473 Algorithms
11/12	473 Algorithms	498 Computational Geometry
10/11	598 Randomized Algorithms	473 Algorithms
09/10	573 Algorithms	598 Geometric Approximation Algorithms
08/09	598 Randomized Algorithms	373 Introduction to the theory of computation
07/08	473G Algorithms	273 Introduction to the theory of computation
06/07	Sabbatical	
05/06	598 Randomized algorithms	473G Algorithms
04/05	598 Approximation algorithms in geometry	473U Algorithms (undergrad section)
03/04	473G Algorithms	273 Introduction to theory of computation

02/03	497 Randomized Algorithms.	373 Algorithms
01/02	373 Algorithms	373 Algorithms
00/01	497 Clustering and Search in Low dimension.	497 Randomized Algorithms

Duke University. Spring 2000, Advanced Computational Geometry

Tel-Aviv University TA of courses in Computer Science at Tel Aviv University:

Assembly Language (x86), 96–97, Compilation, 96-97, 97–98, Efficiency of Computation 96–97, Introduction to Computer Science in Scheme 96–97, Programming Lab (C & Unix), 96–97, Software I (C & Unix) 97–98, Software II (Project in C++) 97–98, Workshop on Computational Geometry & Java 97–98.

8 Program committees

1. SoCG, 2017.
2. FOCS, 2016.
3. SODA, 2015.
4. SWAT, 2014.
5. EuroCG, 2013.
6. 29th ACM Symposium on Computational Geometry (SoCG), 2013.
7. 15th Inter. Workshop on Approx. Alg. Combin. Optimization Problems (APPROX), 2012.
8. 3rd Workshop on Massive Data Algorithmics (MASSIVE), 2011.
9. 31st Conf. Found. Software Tech. and Theoretical Computer Science (FSTTCS), 2011.
10. 2nd Workshop on Massive Data Algorithmics (MASSIVE), 2010.
11. 24th ACM Symposium on Computational Geometry (SoCG), 2008.
12. 19th ACM-SIAM Symposium on Discrete Algorithms (SODA), 2008.
13. 34th Inter. Colloq. Automata, Languages and Programming (ICALP), 2007 - Track A.
14. 25th Conf. Found. Software Technology and Theor. Computer Science (FSTTCS), 2005.
15. 46th IEEE Symposium on Foundation of Computer Science (FOCS), 2005.
16. Video & multimedia track of 21st ACM Sym. Computational Geometry (SoCG), 2005.
17. 37th ACM Symposium Theory Computation (STOC), 2005.
18. 17th ACM Symposium on Computational Geometry (SoCG), 2001.

9 Editorial board

- Algorithmica (Springer).
- TALG: ACM Transactions on Algorithms (ACM).