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Education

1989-90 Postdoctoral Fellowship – DIMACS, Rutgers University.

1988-89 Postdoctoral Fellowship – NSERC, U. of Montreal.

1988 Ph.D. - Computer Science, McGill University.

1984 B.S.E. – Computer Science, Princeton University.

Employment

2016-present Associate Department Chair, Department of Computer Science and Engineering, The Ohio State University.

1996-present Associate Professor, Department of Computer Science and Engineering, The Ohio State University.

1990-1996 Assistant Professor, Department of Computer Science and Engineering, The Ohio State University.

Books

Wenger, R. *Isosurfaces: Geometry, topology and algorithms*, CRC Press, 2013.

Journal Publications

Bhattacharya, A., Weissenbock, J., Wenger, R., Amirkhanov, A., Kastner, J., and Heizl, C. Interactive exploration and visualization using MetaTracts extracted from carbon fiber reinforced composites, *IEEE Transactions on Visualization and Computer Graphics*, **23**, 2017, pp. 1988-2000.

Chaudhuri, A, Lee, T.Y., Shen, H.W. and Wenger, R. Exploring flow fields using space-filling analysis of streamlines, *IEEE Transactions on Visualization and Computer Graphics*, **20**, 2014, pp. 1392-1404.

Bhattaca, A. and Wenger R. Constructing isosurfaces with sharp edges and corners using cube merging, *Computer Graphics Forum*, **32**, 2013, pp. 11-20.

- Khoury, M. and Wenger, R. On the fractal dimension of isosurfaces. *IEEE Transactions on Visualization and Computer Graphics*, **16**, 2010, pp. 1198–1205.
- Raman, S. and Wenger, R. Quality isosurface mesh generation using an extended Marching Cubes lookup table. *Computer Graphics Forum*, **27**, 2008, pp. 791-798.
- Smiraglia, D.J., Kazhiyur-Mannar, R., Oakes, C.C., Wu, Y.Z., Liang, P., Ansari, T., Su, J., Rush, L.J., Smith, L.T., Yu, L., Liu, C., Dai, Z., Chen, S.S., Wang, S.H., Costello, J., Ioshikhes, I., Dawson, D.W., Hong, J.S., Teitell, M.A., Szafrank, A., Camoriano, M., Song, F., Elliott, R., Held, W., Trasler, J.M., Plass, C., and Wenger, R. Restriction landmark genomic scanning (RLGS) spot identification by second generation virtual RLGS in multiple genomes with multiple enzyme combinations. *BMC Genomics*, **8**:446 2007.
- Gupta H. and Wenger R. Constructing pairwise disjoint paths with few links. *Transactions on Algorithms*, **3** 2007.
- Dey T. and Wenger R. Stability of critical points with interval persistence. *Discrete and Computational Geometry*, **38** 2007, pp. 479–512.
- Kazhiyur-Mannar, R., Smiraglia, D.J., Plass, C., Wenger, R. Contour area filtering of two-dimensional electrophoresis images. *Medical Image Analysis*, **10** 2006, pp. 353–365.
- Lin, M., Smith, L.T., Smiraglia, D.J., Kazhiyur-Mannar, R., Lang, J.C., Schuller, D.E., Kornacker, K., Wenger, R., Plass, C. DNA copy number gains in head and neck squamous cell carcinoma. *Oncogene*, **25** 2006, pp. 1424–1433.
- Bhaniramka, P., Wenger R. and Crawfis, R., Isosurface construction in any dimension using convex hulls. *IEEE Trans. on Vis. and Computer Graphics*, **10** 2004, pp. 130–141.
- Dey, T.K and Wenger, R., Fast reconstruction of curves with sharp corners. *Int. J. of Comp. Geom. & Applications*, **12** 2002, pp. 353-400.
- Pach, J., Wenger, R., Embedding planar graphs at fixed vertex locations. *Graphs and Combinatorics*, **17** 2001, pp. 717–728.
- Dey, T.K., Giesen, J., Leekha, N., Wenger, R., Detecting boundaries for surface reconstruction using co-cones. Special issue *Intl. J. Comput. Graphics CAD/CAM*, **16**, 2001, pp. 141–159.
- Dey, T.K., Wenger R., Reconstructing Curves with Sharp Corners. *Computational Geometry: Theory and Applications* **19** 2001, pp. 89–99.

- Aronov, B., Goodman, J.E., Pollack, R., Wenger, R., A Helly-Type Theorem for Hyperplane Transversals to Well-Separated Convex Sets. *Discrete and Computational Geometry* **25** 2001, pp. 507–517.
- Aronov, B., Goodman, J.E., Pollack, R., Wenger, R., On the Helly Number for Hyperplane Transversals to Unit Balls. *Discrete and Computational Geometry* **24** 2000, pp. 171–176.
- Lam, C., Sadayappan, P., Wenger, R., On optimizing a class of multi-dimensional loops with reduction for parallel execution. *Parallel Processing Letter* **7** 1997, pp. 157–168.
- Gupta, H., Wenger, R. Constructing piecewise linear homeomorphisms of simple polygons. *Journal of Algorithms* **22** 1997, pp. 142–157.
- Wenger, R. Randomized Quickhull. *Algorithmica* **17** 1997, pp. 322–329.
- Goodman, J.E., Pollack, R., Wenger, R. Bounding the number of geometric permutations induced by k -transversals. *Journal of Combinatorial Theory: Series A* **75** 1996, pp. 187–197.
- Anderson, L., Wenger, R. Oriented matroids and hyperplane transversals. *Advances in Mathematics* **119** 1996, pp. 117–125.
- Goodman, J.E., Pollack, R., Wenger, R. There are uncountably many universal topological planes. *Geometriae Dedicata* **59** (1996), pp. 157–162.
- Goodman, J.E., Pollack, R., Wenger, R. On the connected components of the space of line transversals to a family of convex sets. *Discrete and Computational Geometry* **13** (1995), pp. 469–476.
- Goodman, J.E., Pollack, R., Wenger, R., Zamfirescu, T. Arrangements and topological planes. *The American Mathematical Monthly* **101** (1994), pp. 866–878.
- Goodman, J.E., Pollack, R., Wenger, R., Zamfirescu, T. Every arrangement extends to a spread. *Combinatorica* **14** (1994), pp. 301–306.
- Cappell, S., Goodman, J., Pach, J., Pollack, R., Sharir, M., Wenger, R. Common tangents and common transversals. *Advances in Mathematics* **106** 2 (1994), pp. 198–215.
- Aronov, B., Chazelle, B., Edelsbrunner, H., Guibas, L.J., Sharir, M., Wenger, R. Points and triangles in the plane and halving planes in space. *Discrete and Computational Geometry* **6** 5 (1991), pp. 435–442.
- Egyed, P., Wenger, R. Ordered stabbing of pairwise disjoint convex sets in linear time. *Discrete and Applied Mathematics*, (1991), pp. 133–140.
- Wenger, R. Extremal graphs with no C^4 's, C^6 's or C^{10} 's. *Journal of Combinatorial Theory, Series B*, **52** (1991), pp. 113–116.

- Pollack, R., Wenger, R. Necessary and sufficient conditions for hyperplane transversals. *Combinatorica* **10** (1990), pp. 307–311.
- Wenger, R. A generalization of Hadwiger’s theorem to intersecting sets. *Discrete and Computational Geometry* **5** (1990), pp. 383–388.
- Wenger, R. Upper bounds on geometric permutations for convex sets. *Discrete and Computational Geometry* **5** (1990), pp. 27–33.
- Avis, D., Robert, J.M., Wenger, R. Lower bounds for line stabbing. *Information Processing Letters* **33** (1989), pp. 59–62.
- Hayward, R., Rappaport, D., Wenger, R. Some extremal results on circles containing points. *Discrete and Computational Geometry* **4** (1989), pp. 253–258.
- Avis, D., Wenger, R. Polyhedral line transversals in space. *Discrete and Computational Geometry* **3** (1988), pp. 257–265.

Conference Proceedings

- Shen, H.W., Vasko, R., and Wenger, R. Visualizing flow fields using fractal dimensions. *Euro Vis*, 2016.
- Bhattacharya, A., Heinzl, C., Amirkhanov, A., Kastner, J., and Wenger, R. MetaTracts - A method for robust extraction and visualization of carbon fiber bundles in fiber reinforced composites, *Pacific Vis*, 2015, pp. 191–198, (Best paper award.)
- Wang, S., Wang, Y. and Wenger, R. The JS-graphs of join and split trees, *Proceedings of Thirtieth Annual Symposium on Computational Geometry*, 2014.
- Harvey, W., Wang, Y. and Wenger, R. A randomized $O(m \log m)$ time algorithm for computing Reeb graphs of arbitrary simplicial complexes, *Proc. Symposium on Computational Geometry, 2010* (2010), pp. 267–276.
- Dey, T.K., Levine, J.A. and Wenger, R. A Delaunay simplification algorithm for vector fields. *Proceedings of the 15th Pacific Conference on Computer Graphics and Applications*, 2007, pp. 281–290.
- Cheng, S.W., Dey, T.K., Ramos, E.A., Wenger, R. Anisotropic surface meshing. *Symposium on Discrete Algorithms, 2006* (2006), pp. 202–211.
- Bhaniramka, P., Zhang, C., Xue, D., Crawfis, R., Wenger, R. Volume interval segmentation and rendering. *Proc. VolVis 2004*, (2004), pp. 55–62.
- Ji, G., Shen, H.W. and Wenger, R., Volume tracking using higher dimensional isosurfacing. *Proc. IEEE Visualization 2003*, (2003), pp. 209–216.

- Dey, T.K., Giesen, J., Goswami, S., Hudson, J., Wenger, R., Zhao, W.
Undersampling and oversampling in sample based shape modeling. *Proc. IEEE Visualization 2001*, (2001), 83–90.
- Bhaniramka, P., Wenger, R., Crawfis, R. Isosurfacing in higher dimensions. *Proc. IEEE Visualization 2000*, (2000), pp. 267–273.
- Dey, T., Wenger, R., Reconstructing curves with sharp corners. *Proc. Symposium on Computational Geometry*, (2000), pp. 233–241.
- Aronov, B., Goodman, J.E., Pollack, R., Wenger, R., A Helly-Type Theorem for Hyperplane Transversals to Well-Separated Convex Sets. *Proc. Symposium on Computational Geometry*, (2000), pp. 233–241.
- Bhaniramka, P., Crawfis, R., Kang, H.S., Liang, D., Wenger R., Yao, Z., Marching Cubes in Four and Higher Dimensions: Extended Abstract. 4th CGC Workshop on Computational Geometry, (1999).
- Pach, J., Wenger, R., Embedding Planar Graphs at Fixed Vertex Locations. *Graph Drawing (Proc. GD '98)*, Lecture Notes in Computer Science 1547, (1998), pp. 263–274.
- Steiger, W., Wenger, R., Hyperplane Depth and Nested Simplices. *Proceedings of the 10th Canadian Conference on Computational Geometry*, (1998), pp. 12–13.
- Babikov, M., Souvaine, D., Wenger, R. Constructing Piecewise Linear Homeomorphisms of Polygons with Holes. *Proc. Canadian Conference on Computational Geometry*, (1997), pp. 6–10.
- Gupta, H., Wenger, R. Constructing Pairwise Disjoint Paths with Few Links. *Proceedings of the 5th Workshop on Algorithms and Data Structures*, Lecture Notes in Computer Science, 1272, (Springer-Verlag, 1997), pp. 416–425.
- Lam, C., Sadayappan, P., Wenger, R. Optimal Reordering and Mapping of a Class of Nested-Loops for Parallel Execution. *Proceedings of the Ninth Workshop on Languages and Compilers for Parallel Computing*, (1996).
- Lam, C., Sadayappan, P., Wenger, R. Optimization of a Class of Multi-Dimensional Integrals on Parallel Machines. *Proceedings of Eighth SIAM Conference on Parallel Processing for Scientific Computing*, (1997).
- Goodman, J.E., Pollack, R., Wenger, R. Bounding the number of geometric permutations induced by k -transversals. *Proceedings of the 10th ACM Conference on Computational Geometry*, (1994), pp. 192–197.
- Goodman, J.E., Pollack, R., Wenger, R., Zamfirescu, T., There is a universal topological plane. *Proceedings of the 8th ACM Conference on Computational Geometry* (1992), pp. 171–176.

- Aronov, B., Chazelle, B., Edelsbrunner, H., Guibas, L.J., Sharir, M., Wenger, R., Points and triangles in the plane and halving planes in space. Proceedings of the 6th ACM Conference on Computational Geometry (1990), pp. 112–115.
- Cappell, S., Goodman, J., Pach, J., Pollack, R., Sharir, M., Wenger, R., On the combinatorial complexity of hyperplane transversals. Proceedings of the 6th ACM Conference on Computational Geometry (1990), pp. 83–91.
- Pollack, R., Wenger, R. Necessary and sufficient conditions for hyperplane transversals. Proceedings of the 5th ACM Conference on Computational Geometry, (1989), pp. 152–155.
- Egyed, P., Wenger, R. Stabbing pairwise disjoint translates in linear time. Proceedings of the 5th ACM Conference on Computational Geometry, (1989), pp. 364–369.
- Avis, D., Wenger, R. Algorithms for line stabbers in space. Proceedings of the 3rd ACM Conference on Computational Geometry, (1987), pp. 300–307.

Other Publications

- Wenger, R. Progress in Geometric Transversal Theory. *Contemporary Mathematics*, B. Chazelle and J.E. Goodman, Eds., (American Mathematical Society, 1999), pp. 375–393.
- Wenger, R. Helly-type theorems and geometric transversals. *Handbook of Discrete and Computational Geometry*, J. O’Rourke and J. E. Goodman, Eds., (CRC Press, 1997), pp. 63–82.
- Goodman, J.E., Pollack, R., Wenger, R. Geometric transversal theory. *Recent Trends in Discrete and Computational Geometry*, J. Pach Ed., (Springer-Verlag, 1993), pp. 163–198.

Research Funding

- 2006-2008** National Science Foundation - “Nonsmoothness in Meshing, Reconstruction and Feature Extraction” PI: Dr. Tamal Dey - \$266,000
- 2001-2004** National Institute for Health - “Genomic scanning for genetic and epigenetic alterations” - PI: Dr. Christoff Plass - \$257,250.
- 1997-1998** National Security Agency - “Algorithms for Constructing Piecewise Linear Homeomorphisms” - \$32,703
- 1993-1994** National Security Agency - Young Investigator’s Grant - “Algorithms for Constructing Homeomorphisms” - \$26,000

Student Advising

- 2009-2015** Bhattacharya, Arindam. Ph.D. advisor. Graduated 2015. Thesis title: Gradient dependent reconstruction from scalar data.
- 2017-2018** Xiao, Fei. Master's thesis advisor. Graduated 2018. Thesis: Hexahedral mesh generation from volumetric data by dual interval volume.
- 2014-2017** Vasko, Ross. Undergrad thesis advisor. Graduated 2016. Thesis title: Techniques for assistance in streamline and stream surface visualizations. Winner of a Goldwater Scholarship.
- 2009-2012** Khoury, Mark. Undergrad thesis advisor. Graduated 2012. Thesis title: The nature of the isosurface fractal dimension. Winner of Tech-Tomorrow scholarship from TechColumbus (2010). Winner of Churchill Fellowship for graduate study at Cambridge, England. Winner of an NSF graduate fellowship (Berkeley).
- 2002-2003** Ansari, Tahmina. Undergraduate thesis advisor. Graduated 2003. Thesis title: VRLGS - Virtual restriction landmark genome scanning.

Major service

- 2016-present** Associate chair, CSE department.
- 2014-2015** Chair, CSE graduate admissions committee.
- 2008-2016** CSE honors advisor and member of the COE engineering honors committee.
- 2000-2001** Chair, CSE grad studies committee.
- 1997-1998** Chair, CSE grad studies committee.