

# Curriculum Vitæ

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## Research Interests

Shape analysis, computational geometry / topology, computational biology, visualization, computer graphics.

## Education

2000 – 2004 **Ph.D.**, Computer Science, Duke University, USA

Research supervised by Prof. Pankaj K. Agarwal and Prof. Herbert Edelsbrunner  
Thesis title: Shape Representation and Analysis in Structural Biology Applications  
(Won Best Dissertation Award, CS Dept, Duke U., 2004.)

1998 – 2000 **M.Sc.**, Computer Science, Duke University, USA

Research supervised by Prof. Pankaj K. Agarwal  
Thesis title: Fast Occlusion Culling Algorithms for Walkthrough Applications

1993 – 1998 **B.Sc.** (Graduated with Distinction), Computer Science, Tsinghua University, China

Thesis supervised by Prof. Zesheng Tang  
Thesis title: Reconstruction of 3D Anatomical Structures from 2D Medical Images

## Employment

2005 – present **Assistant Professor:** Computer Science and Engineering, OSU.

2004 – 2005 **Postdoctoral Fellow:** Computer Science Department, Stanford University.

May, 2000 - Aug., 2000

**Summer Intern:** Visualization Systems Lab. IBM T. J. Watson Research Center.

May, 1999 - Aug., 1999

**Summer Intern:** Multimedia Lab. IBM T. J. Watson Research Center.

## Honors & Awards

- DOE Early Career Award (2006)
- Dept. Best Ph.D Dissertation, Duke University (2004)
- Department service award, Duke University (2002 - 2003).
- Graduate with Distinction (B.Sc. studies), Tsinghua University (1998)
- IBM Scholarship, Tsinghua University (1995)
- Scholarships of Distinction & Merit, Tsinghua University (1994-1998)

## Publications

### Book Chapters

- [1] V. Natarajan, P. Koehl, Y. Wang, and B. Hamann. Visual analysis of biomolecular surfaces. In L. Linsen, H. Hagen, and B. Hamann (editors), *Mathematical Methods for Visualization in Medicine and Life Sciences*. Springer Verlag, Mathematics and Visualization, 237–256, 2008.

### Journal Papers

- [2] Y. Wang. Relations between two common types of rectangular tiling. *Internal. J. Comput. Geom. Appl.*, 2007. To appear.
- [3] L. J. Guibas and Y. Wang. Towards unsupervised segmentation of semi-rigid low-resolution molecular surfaces. *Algorithmica*, 48(4):433–438, 2007.
- [4] A. Sacan, O. Ozturk, H. Ferhatosmanoglu, and Y. Wang. LFM-Pro: A tool for detecting significant local structural sites in proteins. *Bioinformatics*, 23(6):709–716, 2007.
- [5] P. K. Agarwal, N. Mustafa, and Y. Wang. Efficient algorithms for contact-map overlap problem. *J. Comput. Biology (JCB)*, 14(2):131–143, 2007.
- [6] H. Wu, M. Wong, I. Liu, and Y. Wang. Placement-proximity-based voltage island grouping under performance requirement. *IEEE Trans. Computer-Aided Design*, 26(7):1256–1269, 2007.
- [7] V. Natarajan, Y. Wang, T. Bremer, V. Pascucci, and B. Hamann. Segmenting molecular surfaces. *Computer Aided Geometric Design (CAGD)*, pages 495–509, 2006.
- [8] P. K. Agarwal, H. Edelsbrunner, J. Harer, and Y. Wang. Extreme elevation on a 2-manifold. *Discrete and Computational Geometry (DCG)*, 36(4):553–572, 2006.
- [9] P. K. Agarwal, Y. Wang, and H. Yu. A 2D kinetic triangulation with near-quadratic topological changes. *Discrete and Computational Geometry (DCG)*, 36(4):573–592, 2006.
- [10] P. K. Agarwal, S. Har-Peled, N. Mustafa, and Y. Wang. Near-linear time approximation algorithms for curve simplification. *Algorithmica*, 42(3/4):203–221, 2005.
- [11] P. K. Agarwal, H. Edelsbrunner, and Y. Wang. Computing the writhing number of a polygonal knot. *Discrete and Computational Geometry*, 32(1):37–53, 2004.
- [12] S. Har-Peled and Y. Wang. Shape fitting with outliers. *SIAM Journal on Computing*, 33(2):269–285, 2004.

### Refereed Conferences

- [13] H. Sun, H. Ferhatosmanoglu, M. Ota, and Y. Wang. Enhanced partial order curve comparison over multiple protein folding trajectories. In *Proc. Intl. Conf. Computational System Bioinformatics*, pages 299–310, 2007.
- [14] Y. Wang. Relations between two common types of rectangular tiling. In *Intl. Symp. Algorithms and Computation*, pages 193–202, 2006.
- [15] B. Aronov, S. Har-Peled, C. Kauner, C. Wenk, and Y. Wang. Fréchet distance for curves revisited. In *Proc. 14th Annu. European Sympos. Algorithms*, pages 52–63, 2006.
- [16] S. Funke, L. Guibas, A. Nguyen, and Y. Wang. Distance-sensitive routing and information brokerage in sensor networks. In *Intl. Conf. Distributed Computing in Sensor Systems*, pages 234–251, 2006.
- [17] Y. Wang and L. J. Guibas. Towards unsupervised segmentation of semi-rigid low-resolution molecular surfaces. In *Geometric Modeling and Processing*, pages 129–142, 2006.

- [18] H. Wu, I. Liu, M. Wong, and Y. Wang. Post-placement voltage island generation under performance requirement. In *Intl. Conf. Computer Aided Design*, pages 309–316, 2005.
- [19] Y. Wang, P. K. Agarwal, P. Brown, H. Edelsbrunner, and J. Rudolph. Coarse and reliable geometric alignment for protein docking. In *Pacific Symposium on Biocomputing*, pages 66–77, 2005.
- [20] P. K. Agarwal, Y. Wang, and P. Yin. Lower bound for sparse euclidean spanners. In *Proc. 16th ACM-SIAM Sympos. Discrete Algorithms*, pages 670–671, 2005.
- [21] P. K. Agarwal, Y. Wang, and H. Yu. A 2D kinetic triangulation with near-quadratic topological changes. In *Proc. 20th Annu. ACM Sympos. Comput. Geom.*, pages 180–189, 2004.
- [22] P. K. Agarwal, H. Edelsbrunner, J. Harer, and Y. Wang. Extreme elevation on a 2-manifold. In *Proc. 20th Annu. ACM Sympos. Comput. Geom.*, pages 357–365, 2004.
- [23] P. K. Agarwal, S. Har-Peled, M. Sharir, and Y. Wang. Hausdorff distance under translation for points and balls. In *Proc. 19th Annu. ACM Sympos. Comput. Geom.*, pages 282–291, 2003.
- [24] S. Har-Peled and Y. Wang. Shape fitting with outliers. In *Proc. 19th Annu. ACM Sympos. Comput. Geom.*, pages 29–38, 2003.
- [25] P. K. Agarwal, H. Edelsbrunner, and Y. Wang. Computing the writhing number of a polygonal knot. In *Proc. 13th ACM-SIAM Sympos. Discrete Algorithms*, pages 791–799, 2002.
- [26] P. K. Agarwal, S. Har-Peled, N. Mustafa, and Y. Wang. Near-linear time approximation algorithms for curve simplification. In *Proc. 10th Annu. European Sympos. Algorithms*, pages 29 – 41, 2002.
- [27] Y. Wang, P. K. Agarwal, and S. Har-Peled. An on-line occlusion culling algorithm for fast walkthrough in urban areas. In *Eurographics*, 2001.

## Tech-Reports

- [1] M. Belkin, J. Sun, and Y. Wang. Discrete laplace operator for meshed surfaces. Technical Report OSU-CISRC-9/07-TR67, The Ohio State University, 2007.
- [2] S. Har-Peled and Y. Wang. Partial curve matching under the Fréchet distance. Technical Report OSU-CISRC-10/07-TR73, The Ohio State University, 2007.
- [3] Y. Wang. Approximating nearest neighbor among triangles in convex position. Technical Report OSU-CISRC-5/07-TR41, The Ohio State University, 2007.

## Talks

### Invited Talks

- 1 Geometric and topological methods in analyzing molecular structures, *University of Illinois, Bio-Engineering and CS Dept. Joint*, Oct., 2007.
- 2 Geometric methods in molecular structural biology, *Univ. of Arizona, CS Dept.*, May., 2007.
- 3 Topological methods in molecular structural biology, *Univ. of Texas, San Antonio, CS Dept.*, Apr., 2007.
- 4 Topological methods in molecular structural biology, *Cleveland State Univ., Math Dept.*, Apr., 2007.
- 5 Partial curve matching via the Frechet distance, *CG Workshop in the Dagstuhl School, Germany*, March., 2006.
- 6 Topological methods in molecular structural biology, *MSRI workshop on applications of algebraic topology in science and engineering*, Sept., 2006.

- 7 Geometric methods in molecular structure analysis, *Wright State University, Computer Science Dept.*, April, 2006.
- 8 Capturing topological and geometric features of molecular surfaces for protein docking, *MSRI workshop on computational geometry*, Oct., 2003.
- 9 Hausdorff distance under translation for points and balls, *DIMACS workshop on geometric optimization*, May, 2003.

### **Conference Talks**

For majority of the conference paper listed above, I presented them at corresponding conferences.

### **Professional Service**

Program committee ACM Symposium on Computational Geometry 2006.

Refereeing

Journals: *Algorithmica*, *CAGD*, *CGTA*, *IJCGA*, *SICOMP*, *TCBB*  
Conferences: *FOCS*, *SOCG*, *STOC*, *SODA*, *SIGGRAPH*, *Viz*, *ESA*.