

Vladlen Koltun

Curriculum Vitæ

353 Serra Mall, Gates 374
Stanford University, Stanford, CA 94305

<http://cs.stanford.edu/~vladlen>
vladlen@stanford.edu

ACADEMIC EMPLOYMENT AND EDUCATION

- Assistant Professor.** Computer Science, Stanford University. 2005–present
- Research Fellow.** Mathematical Sciences Research Institute. 2003
- Postdoctoral Researcher.** Computer Science, University of California, Berkeley. 2002–2005
- Ph.D.** Computer Science, Tel Aviv University, with distinction. 2002
- B.Sc.** Computer Science, Tel Aviv University, Magna Cum Laude. 2000

HONORS AND AWARDS

- Sloan Research Fellowship.** Alfred P. Sloan Foundation. 2007
- NSF CAREER Award.** National Science Foundation. 2006
- Presidential Grant for Junior Faculty.** Stanford University. 2006
- David Morgenthaler II Faculty Scholarship.** Stanford University. 2005
- Rothschild Postdoctoral Fellowship.** Awarded annually to 12 graduate students from all scientific disciplines in Israel. 2002
- Machtey Award.** IEEE Symposium on Foundations of Computer Science, awarded annually to the best student-authored paper. 2001
- Wolf Foundation Fellowship.** Awarded annually to selected graduate students from all scientific disciplines in Israel. 2001
- Deutsch Prize.** Tel Aviv University, awarded annually to a graduate student “whose research was singled out as outstanding.” 2001

JOURNAL EDITORIAL BOARDS

- Theory of Computing.** Editor. 2004–present
- SIAM Journal on Computing.** Guest Editor, special issue on the 39th ACM Symposium on Theory of Computing. 2007
- SIAM Journal on Computing.** Guest Editor, special issue on the 45th IEEE Symposium on Foundations of Computer Science. 2004

ACADEMIC PROGRAM COMMITTEE MEMBERSHIPS

- STOC.** 39th ACM Symposium on Theory of Computing. 2007
- SoCG.** 21st ACM Symposium on Computational Geometry. 2005
- FOCS.** 45th IEEE Symposium on Foundations of Computer Science. 2004
- STOC.** 36th ACM Symposium on Theory of Computing. 2004

TEACHING AT STANFORD UNIVERSITY

Virtual Worlds. CS448 (Aut 2007), CS468 (Win 2008)

Discrete Structures. CS103X (Win 2006, Win 2007, Win 2008)

Geometric Algorithms. CS468 (Win 2006, Aut 2006), CS369 (Spr 2006)

TEACHING AT ACADEMIC CONFERENCES

SIGGRAPH. Co-taught “Visibility: Problems, Techniques, and Applications.” Los Angeles, CA. 2001

Shape Modeling International. Co-taught “Object-space Morphing.” Genoa, Italy. 2001

ACM Symposium on Virtual Reality Software and Technology. Co-taught “Visibility: Problems, Techniques, and Applications.” London, England. 1999

Eurographics. Co-taught “Visibility Problems for Walkthrough Applications.” Milan, Italy. 1999

SPONSORED RESEARCH POSITIONS

DIMACS. Center for Discrete Mathematics and Theoretical Computer Science. Piscataway, NJ. Oct 2002

New York University. Courant Institute of Mathematical Sciences. New York, NY. Jul–Aug 2002

Institute for Advanced Study. School of Mathematics. Princeton, NJ. Jan 2002

ETH Zürich. Institute of Theoretical Computer Science. Zürich, Switzerland. May–Jul 2001

University College London. Virtual Environments and Computer Graphics group. London, England. Oct–Dec 1999 and Oct 2000

JOURNAL ARTICLES

1. Siddhartha Chaudhuri and Vladlen Koltun. Smoothed Analysis of Probabilistic Roadmaps. *Computational Geometry: Theory and Applications (CGTA)* 42, pp. 731–747. (*Special Issue on the 23rd European Workshop on Computational Geometry.*) 2009
2. Vladlen Koltun and Micha Sharir. On Overlays and Minimization Diagrams. *Discrete and Computational Geometry (DCG)* 41, pp. 385–397. (*Special issue on the 21st ACM Symposium on Computational Geometry.*) 2009
3. Vladlen Koltun and Christos H. Papadimitriou. Approximately Dominating Representatives. *Theoretical Computer Science (TCS)* 371, pp. 148–154. (*Special issue on the 10th International Conference on Database Theory.*) 2007
4. Boris Aronov, Alon Efrat, Vladlen Koltun, and Micha Sharir. On the Union of κ -Round Objects in Three and Four Dimensions. *Discrete and Computational Geometry (DCG)* 36, pp. 511–526. (*Special issue on the 20th ACM Symposium on Computational Geometry.*) 2006
5. Pankaj K. Agarwal, Boris Aronov, and Vladlen Koltun. Efficient Algorithms for Bichromatic Separability. *ACM Transactions on Algorithms (TALG)* 2, pp. 209–227. 2006
6. Pankaj K. Agarwal, Boris Aronov, Vladlen Koltun, and Micha Sharir. Lines Avoiding Unit Balls in Three Dimensions. *Discrete and Computational Geometry (DCG)* 34, pp. 231–250. 2005
7. Vladlen Koltun and Micha Sharir. Curve-sensitive Cuttings. *SIAM Journal on Computing (SICOMP)* 34, pp. 863–878. 2005
8. Vladlen Koltun and Carola Wenk. Matching Polyhedral Terrains Using Overlays of Envelopes. *Algorithmica* 41, pp. 159–183. 2005
9. Boris Aronov, Vladlen Koltun, and Micha Sharir. Cutting Triangular Cycles of Lines in Space. *Discrete and Computational Geometry (DCG)* 33, pp. 231–247. 2005
10. Boris Aronov, Vladlen Koltun, and Micha Sharir. Incidences Between Points and Circles in Three Dimensions. *Discrete and Computational Geometry (DCG)* 33, pp. 185–206. 2005

11. Vladlen Koltun. Almost Tight Upper Bounds for Vertical Decompositions in Four Dimensions. *Journal of the ACM (JACM)* 51, pp. 699–730. 2004
12. Vladlen Koltun. Sharp Bounds for Vertical Decompositions of Linear Arrangements in Four Dimensions. *Discrete and Computational Geometry (DCG)* 31, pp. 435–460. 2004
13. Vladlen Koltun and Micha Sharir. Polyhedral Voronoi Diagrams of Polyhedra in Three Dimensions. *Discrete and Computational Geometry (DCG)* 31, pp. 83–124. (*Special issue on the 18th ACM Symposium on Computational Geometry.*) 2004
14. Vladlen Koltun. Ready, Set, Go! — The Voronoi Diagram of Moving Points that Start from a Line. *Information Processing Letters (IPL)* 89, pp. 233–235. 2004
15. Vladlen Koltun. Segment Intersection Searching Problems in General Settings. *Discrete and Computational Geometry (DCG)* 30, pp. 25–44. (*Special issue on the 17th ACM Symposium on Computational Geometry.*) 2003
16. Vladlen Koltun and Micha Sharir. The Partition Technique for Overlays of Envelopes. *SIAM Journal on Computing (SICOMP)* 32, pp. 841–863. 2003
17. Vladlen Koltun and Micha Sharir. 3-Dimensional Euclidean Voronoi Diagrams of Lines with a Fixed Number of Orientations. *SIAM Journal on Computing (SICOMP)* 32, pp. 616–642. 2003

REFEREED CONFERENCE PUBLICATIONS

1. Siddhartha Chaudhuri and Vladlen Koltun. Smoothed Analysis of Probabilistic Roadmaps. 4th SIAM Workshop on Analytic Algorithms and Combinatorics. 2007
2. Vladlen Koltun and Micha Sharir. On Overlays and Minimization Diagrams. 22nd ACM Symposium on Computational Geometry (**SoCG**), pp. 395–401. Invited to special issue of *Discrete and Computational Geometry*. 2006
3. Sarel Har-Peled and Vladlen Koltun. Separability with Outliers. 16th International Symposium on Algorithms and Computation (**ISAAC**), pp. 28–39. Invited to special issue of *International Journal of Computational Geometry and Applications*. 2005
4. Jason Hartline and Vladlen Koltun. Near-Optimal Pricing in Near-Linear Time. 9th Workshop on Algorithms and Data Structures (**WADS**). *Lecture Notes in Computer Science* 3608, Springer-Verlag, pp. 422–431. 2005
5. Vladlen Koltun. Pianos are not Flat: Rigid Motion Planning in Three Dimensions. 16th ACM–SIAM Symposium on Discrete Algorithms (**SODA**), pp. 505–514. 2005
6. Quanfu Fan, Alon Efrat, Vladlen Koltun, Shankar Krishnan, and Suresh Venkatasubramanian. Hardware-Assisted Natural Neighbor Interpolation. 7th Workshop on Algorithm Engineering and Experiments, pp. 111–120. 2005
7. Vladlen Koltun and Christos H. Papadimitriou. Approximately Dominating Representatives. 10th International Conference on Database Theory (**ICDT**). *Lecture Notes in Computer Science* 3363, Springer-Verlag, pp. 204–214. Invited to special issue of *Theoretical Computer Science*. 2005
8. Boris Aronov, Alon Efrat, Vladlen Koltun, and Micha Sharir. On the Union of κ -Round Objects in Three and Four Dimensions. 20th ACM Symposium on Computational Geometry (**SoCG**), pp. 383–390. Invited to special issue of *Discrete and Computational Geometry*. 2004
9. Pankaj K. Agarwal, Boris Aronov, Vladlen Koltun, and Micha Sharir. On Lines Avoiding Unit Balls in Three Dimensions. 20th ACM Symposium on Computational Geometry (**SoCG**), pp. 36–45. 2004
10. Vladlen Koltun and Carola Wenk. Matching Polyhedral Terrains Using Overlays of Envelopes. 9th Scandinavian Workshop on Algorithm Theory (**SWAT**). *Lecture Notes in Computer Science* 3111, Springer-Verlag, pp. 114–126. 2004
11. Pankaj K. Agarwal, Boris Aronov, and Vladlen Koltun. Efficient Algorithms for Bichromatic Separability. 15th ACM–SIAM Symposium on Discrete Algorithms (**SODA**), pp. 675–683. 2004
12. Boris Aronov, Vladlen Koltun, and Micha Sharir. Cutting Triangular Cycles of Lines in Space. 35th ACM Symposium on Theory of Computing (**STOC**), pp. 547–555. 2003

13. Vladlen Koltun and Micha Sharir. Curve-sensitive Cuttings. 19th ACM Symposium on Computational Geometry (**SoCG**), pp. 136–143. 2003
14. Sarel Har-Peled, Vladlen Koltun, Dezhen Song, and Ken Goldberg. Efficient Algorithms for Shared Camera Control. 19th ACM Symposium on Computational Geometry (**SoCG**), pp. 68–77. Invited to special issue of *International Journal of Computational Geometry and Applications*. 2003
15. Vladlen Koltun and Micha Sharir. The Partition Technique for Overlays of Envelopes. 43rd IEEE Symposium on Foundations of Computer Science (**FOCS**), pp. 637–646. 2002
16. Vladlen Koltun and Micha Sharir. Polyhedral Voronoi Diagrams of Polyhedra in Three Dimensions. 18th ACM Symposium on Computational Geometry (**SoCG**), pp. 227–236. Invited to special issue of *Discrete and Computational Geometry*. 2002
17. Boris Aronov, Vladlen Koltun, and Micha Sharir. Incidences Between Points and Circles in Three Dimensions. 18th ACM Symposium on Computational Geometry (**SoCG**), pp. 116–122. 2002
18. Vladlen Koltun and Micha Sharir. Three Dimensional Euclidean Voronoi Diagrams of Lines with a Fixed Number of Orientations. 18th ACM Symposium on Computational Geometry (**SoCG**), pp. 217–226. 2002
19. Vladlen Koltun and Micha Sharir. On the Overlay of Envelopes in Four Dimensions. 13th ACM–SIAM Symposium on Discrete Algorithms (**SODA**), pp. 810–819. 2002
20. Vladlen Koltun. Almost Tight Upper Bounds for Vertical Decompositions in Four Dimensions. 42nd IEEE Symposium on Foundations of Computer Science (**FOCS**), pp. 56–65. Winner of the *Machtey award for best student paper*. Invited to special issue of *Journal of Computer and System Sciences*. 2001
21. Vladlen Koltun. Complexity Bounds for Vertical Decompositions of Linear Arrangements in Four Dimensions. 7th Workshop on Algorithms and Data Structures (**WADS**). Lecture Notes in Computer Science 2125, Springer-Verlag, pp. 99–110. 2001
22. Vladlen Koltun. Segment Intersection Searching Problems in General Settings. 17th ACM Symposium on Computational Geometry (**SoCG**), pp. 197–206. Invited to special issue of *Discrete and Computational Geometry*. 2001
23. Vladlen Koltun, Yiorgos Chrysanthou, and Daniel Cohen-Or. Hardware-Accelerated From-region Visibility Using a Dual Ray Space. 12th Eurographics Workshop on Rendering (**EGWR**). Rendering Techniques, Springer-Verlag, pp. 204–214. 2001
24. Vladlen Koltun, Yiorgos Chrysanthou, and Daniel Cohen-Or. Virtual Occluders: an Efficient Intermediate PVS Representation. 11th Eurographics Workshop on Rendering (**EGWR**). Rendering Techniques, Springer-Verlag, pp. 59–70. 2000

OTHER CONFERENCE PUBLICATIONS

1. Siddhartha Chaudhuri and Vladlen Koltun. Smoothed Analysis of Probabilistic Roadmaps. 23rd **European Workshop on Computational Geometry**, pp. 82–85. Invited to special issue of *Computational Geometry: Theory and Applications*. 2007
2. Boris Aronov, Vladlen Koltun, and Micha Sharir. Cutting Triangular Cycles of Lines in Space. 19th **European Workshop on Computational Geometry**, pp. 93–96. Invited to special issue of *Computational Geometry: Theory and Applications*. 2003
3. Vladlen Koltun and Micha Sharir. Three Dimensional Euclidean Voronoi Diagrams of Lines with a Fixed Number of Orientations. 18th **European Workshop on Computational Geometry**, pp. 1–3. 2002
4. Vladlen Koltun. Intersection Searching Problems in General Settings. 17th **European Workshop on Computational Geometry**, pp. 89–92. Invited to special issue of *Computational Geometry: Theory and Applications*. 2001
5. Vladlen Koltun and Daniel Cohen-Or. Selecting Effective Occluders for Visibility Culling. **Eurographics** (short presentations track), pp. 165–169. 2000