Curriculum Vitae

Salman Parsa

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Education and Past Positions

- **Postdoc, Sharif University,** Mathematics Department, 10.2016 - present.
- **Postdoc, ENS Paris France,** FSMP postdoctoral award, 08.2015- 08.2016.
- **Postdoc, IST Austria,** Klosterneuburg, Austria, 2015.

- **Duke University Computer Science,** Durham, North Carolina, USA
  PhD Student, 2010 – 2014.
  Thesis Title: Algorithms for the Reeb Graph and Related Concepts.
  Advisor: Herbert Edelsbrunner.
  I did my PhD while I was at IST Austria from 2011 to 2014.

- **Sharif University of Technology**, Tehran, Iran
  M. Sc., Computer Science
  GPA 17.84/20 (without thesis)
  Thesis Title: Ray Tracing Acceleration Algorithms for Electromagnetic Wave Propagation Simulation,
  advisor: A. A. Shishegar, 2007-2009.
- **Sharif University of Technology**, Tehran, Iran
  B. Sc., Computer Science
  GPA 16.98/20
  2003-2007
- **Shahed Sarallah High School**, Khomeinishahr, Isfahan, Iran
  GPA 19.33/20
  1999-2003

Honors

- Best Research Initiation Project (RIP), Duke University, 2012
- Ranked **6**th in "National Entrance Exam for Graduate Studies, Computer Science", 2007
- Ranked **66**th in "National Entrance Exam for Graduate Studies, Computer Engineering", 2007
- Ranked **3**rd in the 2003 Computer Science class, Sharif University of Technology and granted entrance for a Master's degree as an Exceptional Talent, 2007.

- Ranked **996**th in "National Entrance Exam for B.Sc. Studies" among more than 300,000 participants, 2003

Journal Articles

- S. Parsa, “On the Links of Vertices in Simplicial d-Complexes Embeddable in the Euclidean 2d-Space”, Discrete Comput Geom (2017). https://doi.org/10.1007/s00454-017-9936-1
- S. Parsa, “A Deterministic O (m log m) Time Algorithm for the Reeb Graph”. *Discrete & Computational Geometry* 49(4): 864-878 (2013) [First version in SOCG 2012]

Preprints

- Salman Parsa, “Small Model 2-Complexes in 4-space and Applications.” ArXiv e-prints, 1512.05152, 2015.

Conference Papers

- É. Colin de Verdière, S. Parsa, “Deciding Contractibility of a Non-Simple Curve on the Boundary of a 3-Manifold”, Proceedings of the twenty-eighth annual ACM-SIAM Symposium On Discrete Algorithms. 2017, 2691-2704
- H. Edelsbrunner, S. Parsa, “On the computational complexity of Betti numbers: reductions from matrix rank”, Proceedings of the twenty-fifth annual ACM-SIAM Symposium On Discrete Algorithms. 2014, 152-160.
- S. Parsa, A. Shishegar, “A Ray Tracing Acceleration Technique for Wave Propagation Modeling”, *Proc. IEEE Asia–Pacific Microwave Conference*, 2009
- A. Hedayati, S. Parsa, M. Ghodsi, “Touring a Sequence of Polygons in Weighted Regions”, *12th CSI Computer Conference (CSICC'2006)*, Shahid Beheshti University, Tehran, Feb 20-22, 2007

Research Interests

- Discrete Geometry
- Algebraic Topology
- Design and Analysis of Algorithms
  - Computational Geometry Algorithms
  - Computational Topology
  - Computer Vision and Image Processing Algorithms
  - Spatial Data Structures
- Numerical Analysis and Scientific Computing
- Computer Graphics
- Computability Theory
- Interdisciplinary Studies

Teaching Experience

- Teacher, Computer Organization and Design, Sharif University of Tech, 2017
- Teaching Assistant, Randomized Algorithms, Duke University 2013
- Teaching Assistant, Algorithms, IST Austria, 2012
- Teaching Assistant, Artificial Intelligence, Duke University, 2011
- Teaching Assistant, Calculus 1, Sharif University of Technology, 2009
- Teaching Assistant, Scientific Computing, Sharif University of Technology, 2008
- Teaching Assistant, Numerical Analysis 2, Sharif University of Technology, 2007-2008
- Teaching Assistant, Numerical Analysis 1, Sharif University of Technology , 2007

Talks given in

- Séminaire de géométrie algorithmique et combinatoire, January 2016, IHP, Paris, France.
- 24th Fall workshop on Computational Geometry, University of Connecticut, CT, USA
- Applied Algebraic Topology Workshop, 30 June – 4 July 2014, Castro Urdiales, CIEM, Spain.
- Yaroslavl Summer school on Discrete and Computational Geometry, title: "Computational Complexity of Betti Numbers", Yaroslavl, Russia, July 2013

Selected Courses Taken

- Differential Geometry (Duke, Math Dept.)
- Algebraic Topology (Duke, Math Dept.)
- Coding Theory (Duke, CS Dept.)
- Computational Topology (Duke, CS Dept.)
- Theory of Computation 16.1/20
- Stochastic Processes 18.5/20
- Computational Geometry (MS Course taken in BS) 16.0/20
- Combinatorial Analysis (MS Course taken in BS) 16.4/20
- Object Oriented System Design 18.5/20
- Matrix Computations 18.5/20
- Advanced Mathematical Software 18.5/20
- Computational Logic 18/20
- Real Analysis 16.1/20
- Advanced Image Processing 20/20