Alexander G. Belyaev

Personal Data:

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Research Interests:

Applied Partial Differential Equations.
Applied Differential Geometry for Geometric Modelling & Processing.
Variational & PDE-based Methods for Image Processing and Analysis.

Professional Experience:

Sept. 2007 –	Associate Professor, Signal and Image Processing Group, Institute of Sensors, Signals & Systems, School of Engineering and Physical Sciences, Heriot-Watt University, Edinburgh, UK.
	Member of Signal & Image Processing Joint Research Institute, Edinburgh Research Partnership in Engineering and Mathematics.
2003 – 2007	Senior Scientist, D4 - Computer Graphics, Max-Planck-Institut Informatik, Germany.
2002 – 2003	Visiting Senior Scientist, D4 - Computer Graphics, Max-Planck-Institut Informatik, Germany.
1997 – 2003	Associate Professor (tenured since 2000), Department of Computer Software, University of Aizu, Japan.
1996 – 1997	Software Engineer, Gentech corporation, Japan.
1993 – 1996	Visiting Researcher, Center for Mathematical Sciences, University of Aizu, Japan.
1989 – 1993	Junior Research Fellow, Faculty of Mechanics and Mathematics, Lomonosov Moscow State University, Russia.

Academic Degrees:

1990	Lomonosov Moscow State University, Russia, **Ph.D.** on Partial Differential Equations. Thesis advisor: O. A. Olein
1986	Lomonosov Moscow State University, Russia, **M.Sc.** with honors in Mathematics. Thesis advisor: O. A. Oleinik.

Teaching Experience

Courses taught

Heriot-Watt University

B39AX: Engineering Mathematics and Statistics (**2017/18**, with X. Wang for Xidian University students)
B31XM: Advanced Image Analysis (2012/13, 2013/14, 2014/15, 2015/16, 2015/16, **2017/18** with M. Sellathurai)
B31SE: Image Processing (2012/13, 2013/14, 2014/15, 2015/16, 2016/17, **2017/18** with M. Sellathurai)
B38EB: Circuits and Analysis (2016/17 with Pat Chambers, **2017/18** with C. Mateo-Segura)
B39SB Time and Frequency Signal Analysis (2014/15, 2015/16, 2016/17, **2017/18** with D. Reay)
B31VL: Project Placement & Research (2014, 2015, 2016)
B31PB: Software Engineering (2013/14 and 2014/15 with C. Insaurralde, 2015/16 with K. Subr)
B31SE: Image Processing (2008/09 with A. Wallace; 2009/2010, 2010/11, 2011/12 with P. Favaro)
B39SD: Image Processing (2007/08 with Y. Pailhas)
B39AX: Engineering Mathematics and Statistics: (2011/12, 2012/13 with A. Wallace)
B31SI: Principles of Mobile Communications (2010/11, 2011/12 with C.-X. Wang)
B38EB: Circuits and Analysis (2014/15 with C. Insaurralde; 2015/16 with A. Bernassau)
B38EB: Circuits and Analysis (2010/11, 2011/12 with A. Harvey; 2012/13, 2013/14 with C. Mateo-Segura)
B31UA: Numerical Computation and Statistics in Engineering (2008/09, 2009/10 with P. Favaro)
B39MA: Electromagnetism (2008/09 with A. Harvey and I. Fischer)
B37VB: Praxis Programming for Engineers (2008/09, 2009/10 with X. Wang; 2012/13 with N. Robertson)
B31PY: Praxis 2: Computing and Electrical Engineering (2007/08 with N. Robertson)

MPI Informatik	Geometric Modeling (2002 – 2004, 2006 with H.-P. Seidel)
University of Aizu	Modeling Curves and Surfaces (2003) Algorithms and Data Structures (2003) Mathematical Methods for Computer Graphics (2000 – 2001) Mathematical Methods for Computer Vision (2000) Discrete Mathematics (1999 – 2001) Computational Geometry (2000 – 2001) Applied Geometry and Topology (1997 – 2000) Math for Virtual Reality III: Differential Equations (1998 – 2000) Math for Virtual Reality II: Visual Topology (1997 – 1999) Math for Virtual Reality I: Geometric Methods (1997 – 1999) Mathematics with Maple (1994 – 1995 with S. Duzhin and G. Nosovsky)
Lomonosov Moscow State University	Tutorials on Ordinary Differential Equations (1989 – 1993) Tutorials on Partial Differential Equations (1989 – 1993) Tutorials on Equations of Mathematical Physics (1989 – 1993)

PhD students supervised & co-supervised

Yutaka Ohtake, *Mesh Optimization and Feature Extraction*, University of Aizu, March 2002.
(Now Associate Professor at Department of Precision Engineering, University of Tokyo, Japan.)

Masauki Hisada, *Combinatorial and Topological Methods for Shape Processing*, Univ. of Aizu, March 2002.
(Now runs his own network security company, Japan.)

Shin Yoshizawa, *Computational Differential Geometry Tools for Surface Interrogation, Fairing, and Design*, University of Saarland & MPI Informatik, December 2006.
(Now with Bio-research Infrastructure Construction Team at RIKEN, Japan.)

Torsten Langer, *On Generalized Barycentric Coordinates and Their Applications in Geometric Modeling*, University of Saarland & MPI Informatik, December 2008.

Oliver Schall, *Robust and Efficient Processing Techniques for Static and Dynamic Geometric Data*, University of Saarland & MPI Informatik, August 2009.

Waqar Saleem, *Digital Processing and Management Tools for 2D and 3D Shape Repositories*, University of Saarland & MPI Informatik, June 2010. (Now Assistant Professor at Department of Computer Science of National University of Computer and Emerging Sciences, Karachi, Pakistan.)

Jens Kerber, *Of Assembling Small Sculptures and Disassembling Large Geometry*, University of Saarland & MPI Informatik, September 2013.

Tenika Whytock, *Video Diarisation*, Heriot-Watt University, 2010 - 2014.

EngD students co-supervised

Alison O'Neil, *Image Analysis of Noisy Medical 3D/4D Datasets,* Heriot-Watt Industrial Doctorate Centre in Optics and Photonics Technologies, 2011 - 2016.

Miscellaneous

Coaching University of Aizu teams for Asian Regionals of ACM International Collegiate Programming Contests: 8th place at Tsukuba 2000 and 10th place at Hakodate 2001.

Research Grants and Awards

2004 – 2007	*AIM@SHAPE*, local coordinator for MPII, European FP6 NoE grant 506766, 5.8 M Euro.
2005 – 2007	*GEOREP: Geometrical Representations for Computer Graphics*, INRIA (France). Cooperative Research Initiatives.
2001 – 2002	*International academic exchange program*, P.I., grant from University of Aizu, 1.4 M yen.
2000 – 2001	*Toward 3D Digital Aizu Museum*, P.I., grant from University of Aizu, 3.9 M yen.
1999 – 2000	*International academic exchange program*, P.I., grant from University of Aizu, 1.3 M yen.

1998 – 1999	*Curvature Features for 3D Object Analysis in Range Images*, P.I., grant from University of Aizu, 1M yen.
1997 – 1998	*International academic exchange program*, P.I., grant from University of Aizu, 1.5 M yen.
1996	*Cybertext in Mathematical Education*, Co-P.I., grant from Fukushima Prefecture Foundation for the Advancement of Science and Education, 3 M yen.
1992 – 1993	ProMathematica scientific award of the French Mathematical Society.
1992 – 1993	Scientific award of the Soros Foundation.

Service and Leadership

Program Committee Co-chair	Fifth Eurographics Symposium on Geometry Processing 2007. IEEE International Conference on Shape Modeling and Applications 2006. International Conference on Shape Modeling and Applications 2005.
Program Committee Member	International Conference on Shape Modeling and Applications 1999, 2003, 2004, 2007–**2018**. Geometric Modeling and Processing 2006, 2008, 2010, 2012, 2014-**2019**. Numerical geometry, grid generation and scientific computing (NUMGRID) 2010, 2016, **2018**. International Symposium on Visual Computing (ISVC) 2005-2007, 2016, **2018**. Eurographics Symposium on Geometry Processing 2003–2006, 2008–2010, 2014–2015, 2017. ACM Symposium on Solid and Physical Modeling 2007, 2008, 2010, 2012. Pacific Graphics 2001–2005, 2007–2014. SIAM/ACM Joint Conference on Geometric & Physical Modeling 2009, 2011, 2013. CAD/Graphics 2005, 2007, 2013. GraphiCon 2004–2011, 2013. IMA conference on The Mathematics of Surfaces 2007, 2009. ACM SIGGRAPH Sketches & Posters 2007. International Symposium on Voronoi Diagrams 2009, 2012. SIBGRAPI 2006, 2007. Symposium on 3D Data Processing, Visualization and Transmission 2004, 2008. Spring Conference on Computer Graphics 2005–2008. International Conference on Human and Computer 2001–2006. New Advances in Shape Analysis and Geometric Modeling (CYBERWORLDS 2007).
Co-organizer	*Sparsity and Nonlinear Diffusion for Signal and Image Processing* ICMS workshop, Edinburgh, November 2009. (Jointly with J. Tanner.) Second International Workshop on *Geometric Modeling, Computing, and Visualization* University of Aizu, Japan, July 2003. (Jointly with R. Durikovic.)
Principal organizer	International Workshop on *Geometric Modeling, Computing, and Visualization*, University of Aizu, Japan, October 2001. International Seminar on *Recent Developments in Shape Interrogation and, Modeling, Photo-Realistic Rendering, and Remote Sensing and Imaging*, University of Aizu, Japan, Fall 1999. International Seminar on *Geometric and Visual Object Description and Modeling*, University of Aizu, Japan, Fall 1999. *Singularity Theory for Shape Interrogation* Workshop, University of Aizu, Japan, October 1998.

SELECTED PUBLICATIONS

Submitted, Accepted, and Recently Published

- **A. Belyaev** and P.-A. Fayolle, "Counting Parallel Segments: New Variants of Pick's Area Theorem." Submitted.
- P.-A. Fayolle and **A. Belyaev**, "p-Laplace diffusion for distance function estimation, optimal transport approximation, and image enhancement." Submitted.
- **A. Belyaev** and P.-A. Fayolle, "Adaptive curvature-guided image filtering for structure + texture image decomposition." Accepted to *IEEE Transactions on Image Processing*, 27(7), October 2018.
- **A. Belyaev** and P.-A. Fayolle, "Transfinite barycentric coordinates." Chapter 3 in *Generalized Barycentric Coordinates in Computer Graphics and Computational Mechanics*, pp. 43-62. Editors: K. Hormann and N. Sukumar, CRC Press, 2018.

Refereed Journal Articles

1. **A. Belyaev** and P.-A. Fayolle, "On modified Gordon-Wixom interpolation schemes and their applications to nonlinear and exterior domain problems." *Numerical Algorithms*, 77(3):691–708, 2018.
2. **A. Belyaev** and P.-A. Fayolle, "On variational and PDE-based distance function approximations." *Computer Graphics Forum*, 34(8):104–118, 2015.
3. **A. Belyaev** and P.-A. Fayolle, "On transfinite Gordon-Wixom interpolation schemes and their extensions." *Computers & Graphics*, 51:74–80, 2015. (Proc. of SMI 2015.)
4. T. P. Whytock, **A. Belyaev**, and N. M. Robertson, "On covariate factor detection and removal for robust gait recognition." *Machine Vision and Applications*, 26(5):661–674, 2015.
5. T. P. Whytock, **A. Belyaev**, and N. M. Robertson, "Dynamic distance-based shape features for gait recognition." *Journal of Mathematical Imaging and Vision*, 50(3):314–326, 2014.
6. S. Yoshizawa and **A. Belyaev**, "Möbius-invariant surface energies and their applications." *Science China Information Sciences*, 56(9):1–10, 2013.
7. **A. Belyaev**, "Implicit image differentiation and filtering with applications to image sharpening." *SIAM Journal on Imaging Sciences*, 6(1):660–679, 2013.
8. **A. Belyaev**, P.-A. Fayolle, A. Pasko, "Signed L_p-distance fields." *Computer-Aided Design*, 45(2):523–528, 2013.
9. J. Kerber, M. Wang, J. Chang, J. J. Zhang, **A. Belyaev**, and H.-P. Seidel, "Computer Assisted Relief Generation - a Survey." *Computer Graphics Forum*, 31(8):2363–2377, 2012.
10. S. Yoshizawa, **A. Belyaev**, and H. Yokota, "Curvature extremalities for intelligent shape and image interrogation." *Journal for Geometry and Graphics*, 16(1):81–95, 2012.
11. **A. Belyaev**, B. Khesin, and S. Tabachnikov, "Discrete spherical means of directional derivatives and their applications." *Journal of Geometry and Physics*. 62(1):124–136, 2012.
12. W. Saleem, **A. Belyaev**, D. Wang, and H.-P. Seidel, "On visual complexity of 3D shapes." *Computers & Graphics*, 35, pp. 580–585, 2011.
13. J. Kerber, A. Tevs, **A. Belyaev**, R. Zayer and H.-P. Seidel, "Real-time generation of digital bas-reliefs" *Computer-Aided Design and Applications*, 7(4):465–478, 2010.
14. S. Yoshizawa, **A. Belyaev**, and H. Yokota, "Fast Gauss bilateral filtering." *Computer Graphics Forum*, 29(1):60-74, 2010.
15. S. Yoshizawa, **A. Belyaev**, H. Yokota, and H.-P. Seidel, "Fast, robust, and faithful methods for detecting crest lines on meshes." *Computer Aided Geometric Design*, 25(8):545–560, 2008.
16. I. Galić, J. Weickert, M. Welk, A. Bruhn, **A. Belyaev**, and H.-P. Seidel, "Image Compression with Anisotropic Diffusion." *Journal of Mathematical Imaging and Vision*, 31(2-3):255–269, 2008. **100+ citations on Google Scholar.**
17. O. Schall, **A. Belyaev**, and H.-P. Seidel, "Adaptive Feature-preserving Non-local Denoising of Static and Time-varying Range Data." *Computer-Aided Design*, 40(6):701–707, 2008.
18. S. Yoshizawa, **A. Belyaev**, and H.-P. Seidel, "Skeleton-based variational mesh deformations." *Computer Graphics Forum* (Proc. Eurographics 2007), 26(3), September 2007, pp. 255–264.

19. W. Saleem, O. Schall, G. Patanè, **A. Belyaev**, and H.-P. Seidel, "On stochastic methods for surface reconstruction." *The Visual Computer*, 23(6):381–395, 2007. **AIM@SHAPE Best Paper Award for 2006.**
20. O. Schall, **A. Belyaev**, and H.-P. Seidel, "Error-guided adaptive Fourier-based surface reconstruction." *Computer-Aided Design*, 39(5):421–426, 2007.
21. T. Langer, **A. Belyaev**, and H.-P. Seidel, "Exact and interpolatory quadratures for curvature tensor estimation." *Computer Aided Geometric Design*, 24(8-9):443–463, 2007.
22. Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "A Composite Approach to Meshing Scattered Data." *Graphical Models*, 68(3):255–267, 2006.
23. Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "Sparse surface reconstruction with adaptive partition of unity and radial basis functions." *Graphical Models*, 68(1):15–24, 2006.
24. S. Yoshizawa, **A. Belyaev**, and H.-P. Seidel, "A moving mesh approach to stretch-minimizing mesh parameterization." *International Journal for Shape Modeling*, 11(1):25–42, 2005.
25. Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "3D Scattered Data Interpolation and Approximation with Multilevel Compactly Supported RBFs." *Graphical Models*, 67(3):150–165, 2005. **100+ citations on Google Scholar.**
ELSEVIER Graphical Models Top Cited Article 2005-2010 award.
26. Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "Ridge-valley lines on meshes via implicit surface fitting." *ACM Transactions on Graphics* (Proc. ACM SIGGRAPH 2004), 23(3):609–612, 2004. **400+ citations on Google Scholar.**
27. Y. Ohtake, **A. Belyaev**, M. Alexa, G. Turk, and H.-P. Seidel, "Multi-level Partition of Unity Implicits." *ACM Transactions on Graphics* (Proc. ACM SIGGRAPH 2003), 22(3):463–470, 2003. **1000+ citations on Google Scholar.**
28. Y. Ohtake, **A. Belyaev**, and A. Pasko, "Dynamic Mesh Optimization for Polygonized Implicit Surfaces with Sharp Features." *The Visual Computer*. Vol. 19, No. 2-3, May 2003, pp. 115-126.
29. Y. Ohtake and **A. Belyaev**, "Dual-Primal Mesh Optimization for Polygonized Implicit Surfaces with Sharp Features." *Journal of Computing and Information Science in Engineering*. Vol. 2, No. 4, December 2002, pp. 277–284.
100+ citations on Google Scholar.
30. M. Hisada, **A. Belyaev**, and T. L. Kunii "A Skeleton-based Approach for Detection of Perceptually Salient Features on Polygonal Surfaces." *Computer Graphics Forum*, Vol. 21, No. 4, 2002, pp. 1–12.
31. M. Hisada, **A. Belyaev** and T. L. Kunii, "Towards a Singularity-based Shape Language: Ridges, Ravines, and Skeletons for Polygonal Surfaces." *Soft Computing*, Vol. 7, No. 1, November 2002, pp. 45–52.
32. **A. Belyaev**, A. L. Piatnitski, and G. A. Chechkin, "Homogenization of a second-order elliptic operator in a perforated domain with oscillating Fourier boundary conditions." *Sbornik: Mathematics*, Vol. 192, No. 7, 2001, pp. 3–20.
33. Y. Ohtake and **A. Belyaev**, "Mesh optimization for polygonized isosurfaces." *Computer Graphics Forum* (Proc. Eurographics 2001), Vol. 20, No. 3, 2001, pp. 368–376.
34. K. Watanabe and **A. Belyaev**, "Detection of salient curvature features on polygonal surfaces." *Computer Graphics Forum* (Proc. Eurographics 2001), Vol. 20, No. 3, 2001, pp. 385–392. **200+ citations on Google Scholar.**
35. Y. Ohtake, **A. Belyaev**, and I. A. Bogaevski, "Mesh Regularization and Adaptive Smoothing." *Computer-Aided Design*, Vol. 33, No. 11, 2001, pp. 789–800. **100+ citations on Google Scholar.**
36. **A. Belyaev**, G. A. Chechkin, and R. R. Gadyl'shin, "Effective membrane permeability: Estimates and low concentration asymptotics." *SIAM Journal on Applied Mathematics*, 1999, Vol. 60, No. 1, pp. 84–108.
37. **A. Belyaev**, E. V. Anoshkina, S. Yoshizawa, and M. Yano, "Polygonal curve evolutions for planar shape modeling and analysis." *International Journal for Shape Modeling*, 1999, Vol. 5, No. 2, pp. 195–217.
38. **A. Belyaev**, A. L. Piatnitski, and G. A. Chechkin, "Asymptotic behavior of a solution to a boundary-value problem in a perforated domain with oscillating boundary." *Siberian Mathematical Journal*, 1998, Vol. 39, No. 4, pp. 621–644.
39. Y. Shinagawa, T. L. Kunii, **A. Belyaev**, and T. Tsukioka, "Shape modeling and shape analysis based on singularities." *International Journal for Shape Modeling*, 1996, Vol. 2, No. 1, pp. 85–102.
40. **A. Belyaev** and G. A. Chechkin, "Homogenization of a mixed boundary-value problem for the Laplace operator in the case of an insoluble 'limit' problem." 1995, *Sbornik: Mathematics*, Vol. 186, No. 4, pp. 511–525.
41. **A. Belyaev**, "Asymptotics of solutions of boundary value problems in periodically perforated domains with small holes," *Journal of Mathematical Sciences*, 1995, Vol. 75, No. 3, pp. 1715–1749.

42. E. V. Anoshkina, **A. Belyaev**, and T. L. Kunii, "Detection of ridges and ravines based on caustic singularities." *International Journal for Shape Modeling*, 1994, Vol. 1, No. 1, pp. 13–22.

43. E. V. Anoshkina, **A. Belyaev**, O. G. Okunev, and T. L. Kunii, "Ridges and ravines: a singularity approach." *International Journal for Shape Modeling*, 1994, Vol. 1, No. 1, pp. 1–11.

44. **A. Belyaev**, A. Mikheev, and A. S. Shamaev, "Diffraction of a plane wave by a rapidly oscillating surface," *Computational Mathematics and Mathematical Physics*, 1992, Vol. 32, No. 8, pp. 1121–1133.

45. **A. Belyaev**, "A boundary value problem for the Poisson equation in a perforated domain with small inclusions," *Moscow University Mathematics Bulletin*, 1991, Vol. 46, No. 6, pp. 29–33.

46. **A. Belyaev**, "Homogenization of a third boundary value problem for the Poisson equation in a domain with rapidly oscillating boundary," *Vestnik Moskovskogo Universiteta*, 1988, Ser. Mat., No. 6, pp. 63–66. (In Russian.)

Refereed Conference papers:

47. T. P. Whytock, **A. Belyaev**, and N. M. Robertson, "Robust gait recognition via covariate factor mitigation." *5th International Conference on Imaging for Crime Detection and Prevention* (ICDP-13), London, UK, December 2013.

48. S. Yoshizawa and **A. Belyaev**, "Möbius-invariant surface energies and ridges." *14th IMA Conference on Mathematics of Surfaces* (electronic proceedings, ISBN 978-0-905091-30-3), University of Birmingham, UK, September 2013.

49. T. P. Whytock, **A. Belyaev**, and N. M. Robertson, "Improving robustness and precision in GEI+HOG action recognition." *Advances in Visual Computing* (9th International Symposium on Visual Computing, ISVC 2013, Rethymnon, Crete, Greece, July 2013), Lecture Notes in Computer Science, Vol. 8033, 2013, pp 119-128.

50. T. P. Whytock, **A. Belyaev**, and N. M. Robertson, "Towards robust gait recognition." *Advances in Visual Computing* (9th International Symposium on Visual Computing, ISVC 2013, Rethymnon, Crete, Greece, July 2013), Lecture Notes in Computer Science, Vol. 8034, 2013, pp 523-531.

51. S. Yoshizawa and **A. Belyaev**, "Conformally Invariant Energies and Minimum Variation Surfaces." *Asian Conference on Design and Digital Engineering*, Niseko, Japan, December 2012.

52. **A. Belyaev** and H. Yamauchi, "Implicit filtering for image and shape processing." Vision, Modeling and Visualization (VMV 2011), Berlin, Germany, October 2011, pp. 277–283.

53. **A. Belyaev**, "On implicit image derivatives and their applications." British Machine Vision Conference (BMVC 2011), Dundee, Scotland, UK, August-September 2011.

54. J. Kerber, A. Tevs, **A. Belyaev**, R. Zayer, and H.-P. Seidel, "Feature Sensitive Bas Relief Generation." *IEEE International Conference on Shape Modeling and Applications (Shape Modeling International 2009)*, Tsinghua University, Beijing, China, June 2009, pp. 148–154.

55. T. Langer, **A. Belyaev**, and H.-P. Seidel, "Mean Value Bézier Maps." *Geometric Modeling and Processing (GMP 2008)*, Hangzhou, China, April 2008. Springer Lecture Notes in Computer Science (LNCS), Vol. 4975, 2008, pp. 231–243. **The Best Paper Award.**

56. S. Yoshizawa, **A. Belyaev**, H. Yokota, and H.-P. Seidel, "Fast and faithful geometric algorithm for detecting crest lines on meshes." *The 15th Pacific Conference on Computer Graphics and Applications (Pacific Graphics 2007)*, Maui, Hawaii, October-November 2007, pp. 231-237.

57. O. Schall, **A. Belyaev**, and H.-P. Seidel, "Feature-preserving non-local denoising of static and time-varying range data." *12th ACM Symposium on Solid and Physical Modeling (SPM 2007)*, Tsinghua University, Beijing, China, June 2007, pp. 217–222. **The Best Paper Award.**

58. W. Saleem, D. Wang, **A. Belyaev**, and H.-P. Seidel, "Automatic 2D Shape Orientation by Example." *IEEE International Conference on Shape Modeling and Applications (Shape Modeling International 2007)*, Lyon, France, June 2007, pp. 221–225.

59. W. Song, **A. Belyaev**, and H.-P. Seidel, "Automatic generation of bas-reliefs from 3D shapes." *International Conference on Shape Modeling and Applications (Shape Modeling International 2007)*, Lyon, France, June 2007, pp. 211–214.

60. J. Kerber, **A. Belyaev**, and H.-P. Seidel, "Feature Preserving Depth Compression of Range Images." *Proceedings of the 23rd Spring Conference on Computer Graphics (SCCG 2007)*, Budmerice, Slovakia, April 2007, pp. 110–114.
The 2nd Best SCCG 2007 Paper Award.

61. W. Saleem, W. Song, **A. Belyaev**, and H.-P. Seidel, "On Computing Best Fly." *Proceedings of the 23rd Spring Conference on Computer Graphics (SCCG 2007)*, Budmerice, Slovakia, April 2007, pp. 143–149.

62. O. Schall, **A. Belyaev**, and H.-P. Seidel, "Adaptive Fourier-based surface reconstruction." *Geometric Modeling and Processing (GMP 2006)*, Pittsburgh, Pennsylvania, USA, July 2006. Springer Lecture Notes in Computer Science (LNCS), Vol. 4077, pp. 34–44.

63. H. Yamauchi, W. Saleem, S. Yoshizawa, Z. Karni, **A. Belyaev**, and H.-P. Seidel, "Towards salient and stable multi-view representation of 3D shapes." *International Conference on Shape Modeling and Applications (Shape Modeling International 2006)*, Sendai, Japan, June 2006, pp. 265–270.

64. **A. Belyaev**, "On transfinite barycentric coordinates." *4th Eurographics Symposium on Geometry Processing (SGP 2006)*, Sardinia, Italy, June 2006, pp. 89–99.

65. T. Langer, **A. Belyaev**, and H.-P. Seidel, "Spherical barycentric coordinates." *4th Eurographics Symposium on Geometry Processing (SGP 2006)*, Sardinia, Italy, June 2006, pp. 81–88.

66. S. Yoshizawa, **A. Belyaev**, and H.-P. Seidel, "Smoothing by example: mesh denoising by averaging with similarity-based weights." *IEEE International Conference on Shape Modeling and Applications (Shape Modeling International 2006)*, Matsushima, Japan, June 2006, pp. 38–44.

67. T. Langer, **A. Belyaev**, and H.-P. Seidel, "Exact and approximate quadratures for curvature tensor estimation." *Vision, Modeling, and Visualization (VMV 2005)*, Erlangen, Germany, November 2005, pp. 421–428.

68. I. Galić, J. Weickert, M. Welk, A. Bruhn, **A. Belyaev**, and H.-P. Seidel, "Towards PDE-based image compression." *3rd International Workshop on Variational, Geometric and Level Set Methods in Computer Vision*, Beijing, China, October 2005. Springer Lecture Notes in Computer Science (LNCS), Vol. 3752, pp. 37–48.

69. **A. Belyaev** and E. V. Anoshkina, "Detection of surface creases in range data." *Mathematics of Surfaces XI: 11th IMA International Conference*, Loughborough, UK, September 2005. Springer Lecture Notes in Computer Science (LNCS), Vol. 3604, pp. 50–61.

70. Y. Ohtake, **A. Belyaev**, and M. Alexa, "Sparse low-degree implicit surfaces with applications to high quality rendering, feature extraction, and smoothing." *3rd Eurographics Symposium on Geometry Processing (SGP 2005)*, Vienna, Austria, July 2005, pp. 149–158.

71. S. Yoshizawa, **A. Belyaev**, and H.-P. Seidel, "Fast and robust detection of crest lines on meshes." *ACM Symposium on Solid and Physical Modeling (SPM 2005)*, MIT, Cambridge, MA, USA, June 2005, pp. 227–232.
100+ citations on Google Scholar.

72. O. Schall, **A. Belyaev**, and H.-P. Seidel, "Robust filtering of noisy scattered point data." *Eurographics Symposium on Point-Based Graphics (PBG 2005)*, Stony Brook, NY, USA, June 2005, pp. 71–77. **100+ citations on Google Scholar.**

73. H. Yamauchi, S. Lee, Y. Lee, Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "Feature sensitive mesh segmentation with mean shift." *International Conference on Shape Modeling and Applications (Shape Modeling International 2005)*, MIT, Cambridge, MA, USA, June 2005, pp. 236–243. **100+ citations on Google Scholar.**

74. Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "An Integrating Approach to Meshing Scattered Point Data." *ACM Symposium on Solid and Physical Modeling (SPM 2005)*, MIT, Cambridge, MA, USA, June 2005, pp. 61–69.

75. T. Langer, **A. Belyaev**, and H.-P. Seidel, "Asymptotic Analysis of Discrete Normals and Curvatures of Polylines." *Spring Conference on Computer Graphics (SCCG 2005)*, Budmerice, Slovakia, May 2005, pp. 229–232.

76. Y. Ohtake, **A. Belyaev**, and H.-P. Seidel, "3D scattered data approximation with adaptive compactly supported radial basis functions." *International Conference on Shape Modeling and Applications (Shape Modeling International 2004)*, Genova, Italy, June 2004, pp. 31–39.

77. S. Yoshizawa, **A. Belyaev**, and H.-P. Seidel, "A fast and simple stretch-minimizing mesh parameterization." *International Conference on Shape Modeling and Applications (SMI 2004)*, Genova, Italy, June 2004, pp. 200–208.
100+ citations on Google Scholar.

78. I. A. Bogaevski, V. Lang, **A. Belyaev**, and T. L. Kunii, "Color ridges on implicit polynomial surfaces." *GraphiCon 2003*, Moscow, Russia, September 2003, pp. 161–164.

79. S. Yoshizawa, **A. Belyaev** and H.-P. Seidel, "Free-form skeleton-driven mesh deformations." *ACM Symposium on Solid Modeling (SM 2003)*, Seattle, USA, June 2003, pp. 247–253. **100+ citations on Google Scholar.**

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