

Stochastics for big data and big systems – bridging local and global

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1. Papers published or accepted for publication in refereed international journals 2013–February 2016

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- [136] Wilzén A., Rehammar A., Muth A., Nilsson O., Tomić T. T., Wängberg B., Kristiansson E. and Abel F. (2016). Malignant pheochromocytomas/paragangliomas harbor mutations in transport and cell adhesion genes. *International Journal of Cancer*, **138**, 2201–2211.
- [137] Ylitalo, A.-K., Särkkä, A. and Guttorp, P. (to appear). What we look at in paintings: A comparison between experienced and inexperienced art viewers. *Annals of Applied Statistics*.
- [138] Zanella, G. and Zuyev S. (2015). Branching-stable point processes. *Electronic Journal of Probability*, **20**, 1–26.
- [139] Zolghadr, M and Zuyev, S. (to appear) Optimal design of dilution experiments under volume constraints. *J. of Agricultural, Biological, and Environmental Statistics*.

2. Books, book chapters and survey articles 2013–February 2016

- [B1] Berman, R. J. (2014). The Quillen metric, analytic torsion and tunneling for high powers of a holomorphic line bundle. In *Contemporary Mathematics 630 (CRM). Geometric Analysis and Spectral Theory*, 15–33.
- [B2] Bolin, D. (2013). Spatial statistik och beräkningsintensiva metoder. *Qvintensen*, nr 3.
- [B3] Garban, C. and Steif, J. (2014). Noise Sensitivity of Boolean Functions and Percolation. *Cambridge University Press*.
- [B4] Häggström, O. (2013). Why the Empirical Sciences Need Statistics So Desperately. In *European Congress of Mathematics, Krakow, 2–7 July, 2012* (eds R. Latala et al.), *European Mathematical Society Publishing House*, 347–360.
- [B5] Häggström, O. (2016). Here Be Dragons: Science, Technology and the Future of Humanity. *Oxford University Press*.
- [B6] Johannesson, P., Speckert, M., Svensson, T., Dressler, K., Rychlik, I., de Maré, J. and Marquardt, A. (2013). Load Analysis for Durability Applications. *Wiley*.
- [B7] Karlsson R., Gonzales-Siles L., Boulund F., Lindgren Å., Svensson-Stadler L., Karlsson A. and Kristiansson E. (2015). Moore ERB, Proteotyping: Tandem Mass Spectrometry Shotgun Proteomic Characterization and Typing of Pathogenic Microorganisms. In *The Triumph of MALDI-TOF Mass Spectrometry and New Developments in Tandem Mass Spectrometry for Clinical Microbiology*, Wiley.
- [B8] Lang, A. (2013). Isotropic Gaussian random fields on the sphere. In Cohen, A., Dahmen, W., DeVore, R.A. and Kunoth, A., editors, *Multiscale and High-Dimensional Problems*, 39/2013, volume 10 of Oberwolfach Reports, 2216–2219. European Mathematical Society, August 2013. Oberwolfach Report, SAM Report 2013–26.
- [B9] Lang, A. (2014). Stochastic partial differential equations. In Katsushi Ikeuchi, editor, *Computer Vision: A Reference Guide*, 770–775, Springer.
- [B10] Lindgren, G., Rootzén, H. and Sandsten, M. (2013). Stationary stochastic processes for engineers and scientists. *Chapman and Hall/CRC*.
- [B11] Molchanov, I. and Zuyev, S. (2015). Variational analysis of Poisson processes. Chapter in Peccati, G. and Reitzner, M., editors. *Stochastic analysis for Poisson point processes: Malliavin calculus, Wiener–Itô chaos expansions and stochastic geometry*, Springer.
- [B12] Rychlik, I. (2013). Cycle counting. *Encyclopedia of Tribology*, Springer.
- [B13] Särkkä, A. (to appear). Point Processes, Spatial. *Wiley StatsRef - Statistics Reference Online*.
- [B14] Österlund T., Cvijovic M. and Kristiansson E. (2016). Integrative analysis of omics data. In *Systems Biology*, Wiley.

3. Project PhD students

Jakob Hultgren, Magnus Önnheim (adv. Robert Berman)

Anders Hildeman (adv. David Bolin)

Timo Hirscher (adv. Olle Häggström)

Emilio Bergroth (graduated 2013) (adv. Johan Jonasson)

Jonatan Kallus, Jose Sanchez (graduated 2015) (adv. Rebecka Jörnsten)

Jonas Alm (graduated 2015), Sandra Barman Eriksson (adv. Holger Rootzén)

Malin Palö Forsström (adv. Jeffrey Steif)

Claes Andersson, Henrike Häbel, Marco Longfils, Magnus Röding (graduated 2013)
(adv. Aila Särkkä)

Anton Muratov (graduated 2014), Alexey Lindo (graduated 2016) (adv. Sergey Zuyev)

Peter Helgesson (graduated 2015), Dawan Mustafa (graduated 2015) (adv. Bernt Wennberg)

4. Project members

Robert Berman (professor)

Olle Häggström (professor)

Johan Jonasson (professor)

Rebecka Jörnsten (docent)

Holger Rootzén (professor)

Igor Rychlik (professor)

Jeffrey Steif (professor)

Aila Särkkä (professor)

Bernt Wennberg (professor)

Johan Wästlund (docent)

Sergey Zuyev (professor)

Erik Kristiansson (docent, joined project in 2015)

Johan Tykesson (docent, joined project in 2013)

David Bolin (hired by the project as research associate in 2013)

Annika Lang (hired by the project as lecturer in 2013)

Jakob Björnberg (former postdoc)

Marcin Lis (postdoc)

Tuomas Rajala (former postdoc)

Kaspar Stucki (postdoc)

Maud Thomas (postdoc)

Jonas Wallin (postdoc)

Dmitrii Zholud (former postdoc)

5. Visitors

2013

Ben Morris, 16–28/9
Tobias Muller, 2–11/11
Peter Caines, 7–16/11
Ioannis Papastathopoulos, 10–15/11
Arne Pommering, 24/11–2/12

2014

Kaspar Stucki, 2–6/2
Pierre Nyquist, 13/3
Mattias Nordin, 20–24/3, 3–7/4, 2/5, 16/5
Terry Speed, 24–28/3
Marcin Lis, 1–6/4
Jakob Björnberg, 2/4
François Golse, 11/5, 14/5
Aoki Kazuo, 14–15/5
Anne Nouri, 14–16/5
Irene Gamba, 14–17/5
Peter Guttorp, 16/8–20/12
Pavel Grabarnik, 24/8–4/9
Finn Lindgren, 29/8–4/9
Mattias Nordin, 1–14/9
Anja Jansen, 22/9–3/10
Holger Drees, 22/9–3/10
Jennifer Wadsworth, 15–29/11
Anna Kiriliouk, 16/11–6/12

2015

Maud Thomas, 26–30/1
Daniel Simpson, 10–13/3
Ildar Ibragimov, 22/3–2/4
Jürgen Potthoff, 20–27/5
Tailen Hsing, 15/5–25/6
Jennifer Wadsworth, 20/6–3/7
Anna Kiriliouk, 29/6–3/7
Janine Ilian, 18–21/10

6. International workshops, retreats, and postdoc meetings

Workshop in Discrete Random Geometry, Varberg, August 18–22, 2013

6th International Workshop on Kinetic Theory & Applications, Karlstad University, May 12–14, 2014

New Challenges in Spatial and Spatio-Temporal modeling, Smögen Workshop, August 25–29, 2014

Retreat, Varberg, January 15–16, 2013

Retreat, Falkenberg, October 22–23, 2013

Retreat, Varberg, September 8–9, 2014

Retreat, Särö, 27–26 August 2015

Retreat, October 2015

Postdoc meeting, Gothenburg, May 2, 2013

New researcher's meeting, Gothenburg, February 4, 2014

7. Distinctions and grants 2013–15

Robert Berman: Tage Erlanders pris i naturvetenskap, by the Royal Swedish Academy of Sciences (2013).

Elected as member by the Royal Swedish Academy of Sciences (2016).

Jakob Björnberg: VR junior researcher grant, 3.4 MSEK, 2016–19

David Bolin: Cramérpriset, by Cramérsällskapet, awarded each year to one new Ph.D. in statistics or mathematical statistics at a Swedish university (2013).

VR project grant, 2014–17 (main applicant Jun Yu, Umeå University)

Rebecka Jörnsten: Astra Zeneca project award, 20 MSEK + postdoc (PI Sven Nelander)

VR project grant, 5.1 MSEK 2014–17

Erik Kristiansson: CARE – Centre for Antibiotic Resistance Research at University of Gothenburg, 50 MSEK

FRAM – Future Risk Assessment and Management strategies to ensure sustainable chemical use, 50 MSEK

Annika Lang: VR junior researcher grant, 3.2 MSEK, 2015–18

Grant for Mittag-Leffler workshop, June 16–18, 2015 (with David Cohen, Stig Larsson)

Aila Särkkä: VR project grant 4.6 MSEK 2013–18

SSF grant for a project “Material structures seen through microscopes and statistics”, 21 MSEK, 2014–18 (main applicant, coapplicants Nicklas Lorén, Eva Olsson, Holger Rootzén)

Jeffrey Steif: Elected as member by the Royal Swedish Academy of Sciences (2013).

Bernt Wennberg: SSF grant for a project “Hierarchical Mixed Effects Models”, 20MSEK, 2014–2019 (main applicant, coapplicants Mats Jirstrand, Martin Adiels)

Johan Wästlund: Göran Gustafssonpriset (2013).

Sergey Zuyev: Grant for development of the online teaching system VLE, 300KSEK