Alexej Gossmann

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AREAS OF INTEREST

Sparse Regression Models, Mixed Effects Models, Genetics, Spatial Statistics, Computational Statistics, Differential Equations

EDUCATION

PhD, Mathematics
Tulane University, New Orleans, Louisiana, expected May 2017

MS, Statistics
Tulane University, New Orleans, Louisiana, May 2014
Master's Research Project: Analysis of Bone Growth Data by Mixed-Effects SS ANOVA Methods (supervised by Dr. Lacey)
GPA: 3.975

BS, Mathematics
Technische Universität Darmstadt, Darmstadt, Germany, May 2012
Thesis: On disjunction and numerical existence properties of extensions of Heyting arithmetic (supervised by Dr. Kohlenbach)
GPA: 4.0

EXPERIENCE

Teaching Experience

- *Instructor*: Calculus 1, Tulane University, Department of Mathematics, Fall 2014.
- *Co-Teacher*: Statistics for Scientists, Tulane University, Department of Mathematics, Spring 2014.
- *Teaching Assistant*: Various Statistics, Calculus, and Real Analysis courses at Tulane University and Technische Universität Darmstadt, Fall 2010 - Spring 2014.

Internships

- *Google Summer of Code 2015*. Adding Linear Mixed Effects Models Support to SciRuby. Supervised by the Ruby Science Foundation. May – August 2015.

Service

- President of the SIAM student chapter at Tulane University. September 2014 – Present.
- Main organizer of the Graduate Student Colloquium at the department of Mathematics at Tulane University. September 2014 – Present.

Research Assistantship

- Development of statistical and machine learning methods for imaging-genomics in Dr. Yu-Ping Wang's group. January 2015 – Present.
- Testing a linear correlation between two L^2 spatial fields, supervised by Dr. Gromenko, Tulane University, Department of Mathematics. June – August 2014.

Other

- *SAMSI 2014 Mathematical and Statistical Modeling Workshop for Graduate Students*. Project: Allergy, Asthma and Exposures in the Homes of the US Population (supervised by scientists from Rho Inc.), North Carolina State University. July 2014.
- Kommando 1. Luftwaffendivision, Fürstenfeldbruck. Military service at the department for public relations and press. June 2008 – February 2009.

PUBLICATIONS

[1] Shaolong Cao, Huaizhen Qin, Alexej Gossmann, Hong-Wen Deng, and Yu-Ping Wang. Unified tests for fine scale mapping and identifying sparse high-dimensional sequence associations. *Bioinformatics*, 2015.

[2] Mimi C Sammarco, Jennifer Simkin, Alexander J Cammack, Danielle Fassler, Alexej Gossmann, Luis Marrero, Michelle Lacey, Keith Van Meter, and Ken Muneoka. Hyperbaric oxygen promotes proximal bone regeneration and organized collagen composition during digit regeneration. *PloS one*, 10(10), 2015.

[3] Shaolong Cao, Huaizhen Qin, Alexej Gossmann, Hong-Wen Deng, and Yu-Ping Wang. Unified tests for fine scale mapping and identifying sparse high-dimensional sequence associations. In *Proceedings of the 6th ACM Conference on Bioinformatics, Computational Biology and Health Informatics*, BCB '15, pages 241–249, New York, NY, USA, 2015. ACM.

[4] Alexej Gossmann, Shaolong Cao, and Yu-Ping Wang. Identification of significant genetic variants via slope, and its extension to group slope. In *Proceedings of the 6th ACM Conference on Bioinformatics, Computational Biology and Health Informatics*, BCB '15, pages 232–240, New York, NY, USA, 2015. ACM.

TALKS AND COLLOQUIA

- Title: *Identification of Significant Genetic Variants via SLOPE, and its Extension to Group SLOPE*. The 6th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics, Atlanta, GA, 2015.
- Title: *Reproducing Kernel Hilbert Spaces and Smoothing Spline Regression*. Graduate student colloquium, Tulane University, 2014.

POSTER PRESENTATIONS

- A. Gossmann, S. Cao, and Y.-P. Wang, Identification of Significant Genetic Variants via SLOPE, and its Extension to Group SLOPE; (Abstract/Program #1343F). Presented at the 65th Annual Meeting of The American Society of Human Genetics, October 9, 2015, Baltimore, MD.

SOFTWARE

- `mixed_models` – Fit statistical (linear) models with fixed and mixed (random) effects in Ruby. Project repository: `https://github.com/agisga/mixed_models`
- `spitzy` – A toolbox of numerical differential equation solvers written in pure Ruby. Project repository: `https://github.com/agisga/spitzy`

SKILLS

Computer skills: R, Ruby, C++, Matlab, LaTeX, Linux.

Language Knowledge: Bilingual in German and Russian, fluent in English, basic knowledge of French.