

Caroline Uhler

Address: IST Austria
Am Campus 1
A - 3400 Klosterneuburg (Austria)
Nationality: Swiss

Email: caroline.uhler@ist.ac.at
Website: <http://www.carolineuhler.com>
Phone: +43 (0)2243-9000-4901
Date of Birth: April 22, 1983

EMPLOYMENT

Since 11/11 **Assistant Professor**
IST Austria (Institute of Science and Technology Austria)
Group leader: Statistics

9/11 – 11/11 **Postdoctoral Researcher**
Institute of Mathematics and its Applications, University of Minnesota
Annual program: Mathematics of Information

EDUCATION

Ph.D. **University of California, Berkeley** 2007 – 2011
Statistics, with a Designated Emphasis in Computational Biology
Thesis: *Geometry of maximum likelihood estimation in Gaussian graphical models*
Advisor: Bernd Sturmfels

MOT **Haas School of Business, University of California** 2009 – 2011
Management of Technology Degree

M.Ed. **University of Zurich, Switzerland** 2006 – 2007
Mathematics High School Teacher Degree

M.Sc. **University of Zurich, Switzerland** 2004 – 2006
Mathematics
Thesis: *Mastitis in dairy production: Estimation of mastitis test accuracy*
Advisor: Andrew D. Barbour

B.Sc. **University of Zurich, Switzerland** 2002 – 2004
Mathematics, with a Minor in Biology

AWARDS

- Janggen-Poehn Fellowship (full tuition and stipend 2010-2011)
- International Fulbright Science and Technology Award (full tuition and stipend 2007-2010, 30 fellows per year worldwide)
- Best Student Award of the University of Zurich (highest GPA)

PUBLICATIONS

- *Geometry of maximum likelihood estimation in Gaussian graphical models.*
To appear in: Annals of Statistics.

- *Privacy preserving GWAS data sharing.*
With Stephen E. Fienberg and Aleksandra Slavkovic.
To appear in: Proceedings of the 11th IEEE International Conference on Data Mining (2011).
- *Detecting epistasis via Markov bases.*
With Anna-Sapfo Malaspinas.
Journal of Algebraic Statistics, 2 (2011), 36-53.
- *Multivariate Gaussians, semidefinite matrix completion and convex algebraic geometry.*
With Bernd Sturmfels.
Annals of the Institute of Statistical Mathematics, 62 (2010), 603-638.
- *Commuting birth-and-death processes.*
With Steven N. Evans and Bernd Sturmfels.
Annals of Applied Probability, 20 (2010), 238-266.
- *Mastitis in dairy production: Estimation of sensitivity, specificity and disease prevalence in the absence of a gold standard.*
Journal of Agricultural, Biological, and Environmental Statistics, 14 (2009), 79-98.
- *A complete Neandertal mitochondrial genome sequence determined by high-throughput sequencing.*
With Richard Green, Anna-Sapfo Malaspinas, Johannes Krause, Adrian Briggs, Philip Johnson, et al.
Cell, 134 (2008), 416-426.

In preparation:

- *Asymptotics of maximum likelihood estimation in Gaussian cycles.*
With Venkat Chandrasekaran and Parikshit Shah.
- *A model for chromosome territories based on sphere packings.*
With Saira Mian.

INVITED PRESENTATIONS

- IMA Postdoc Seminar. University of Minnesota, MN. (October 2011)
- SIAM Conference on Applied Algebraic Geometry. North Carolina State University, NC. (October 2011)
- CDI Meeting, Integrating Statistics and Computational Approaches to Data Privacy. Penn State University, PA. (June 2011)
- Seminar on Computational Topology. Stanford University, CA. (April 2011)
- Research Seminar in Statistics. ETH Zurich, Switzerland. (December 2010)
- Statistics and Genomics Seminar. UC Berkeley, CA. (September 2010)
- The Second CREST-SBM International Conference on Harmony of Groebner Bases and the Modern Industrial Society. Osaka, Japan. (June 2010)
- AMS Sectional Meeting on Advances in Algebraic Statistics. Lexington, KY. (March 2010)
- Seminar on Convex Algebraic Geometry. UC Berkeley, CA. (March 2010)
- Second de Brun Workshop on Computational Algebra. Galway, Ireland. (July 2009)
- Group meeting of Monique Laurent. CWI Amsterdam, Netherlands. (June 2009)
- EIDMA Seminar Combinatorial Theory. Technische Universiteit Eindhoven, Netherlands. (June 2009)

- FRG Meeting: Semidefinite Optimization and Convex Algebraic Geometry. MIT, Cambridge, MA. (May 2009)
- Seminar on Discrete Mathematics. UC Berkeley, CA. (April 2009)
- Workshop on Algebraic Statistics. Mathematical Sciences Research Institute, Berkeley, CA. (December 2008)
- Seminar on Discrete Mathematics. UC Berkeley, CA. (October 2008)
- Department of Biosystems, Science and Engineering. ETH Zurich, Switzerland. (August 2008)
- Seminar on Model Selection. Technische Universität, Berlin. (July 2008)

ADDITIONAL CONFERENCE ATTENDANCE

- AIM Workshop on Parameter Identification in Graphical Models. American Institute of Mathematics Research Conference Center, Palo Alto, CA. (October 2010)
- Opening Workshop on Algebraic Methods in Systems Biology and Statistics. Statistical and Applied Mathematical Sciences Institute, Research Triangle Park, NC. (September 2008)
- XX International Congress of Genetics. Berlin, Germany. (July 2008)
- LMS Durham Symposium on Mathematical Aspects of Graphical Models. Durham, England. (June 2008)
- IMA Workshop on Applications in Biology, Dynamics and Statistics. University of Minnesota, MN. (March 2007)
- Summer School on Algebraic Statistics, Tropical Geometry and Computational Biology. Nordfjordeid, Norway. (June 2006)

TEACHING EXPERIENCE

Graduate Student Instructor – University of Zurich, Switzerland *2006 – 2007*

- Taught sections on Advanced Algebra, designed problem sets, assessed and tracked student progress
- Initiated and developed introductory course on mathematical proving techniques, designed lecture notes

High school and middle school teacher – Switzerland *2001 – 2006*

- Guided 40 students through middle school, prepared them for high school, and evaluated them
- Taught and demystified mathematics with energetic lectures and memorable real-world examples

SERVICE AND NON-PROFIT ACTIVITIES

Co-founder and manager of Thailand-Volunteering Association – Switzerland *2003 – 2007*

- Established volunteering organization, concept and program for Swiss students
- Organized stays for ~40 volunteers as English teachers in Thailand
- Selected, prepared, supported and supervised volunteers
- Created and maintained website, advertised project in high schools and universities

Managing Committee of the Students' Mathematics Association – University of Zurich *2004 – 2006*

- Responsible for introductory program for new students

Volunteering as English teacher – Thailand

Summer 2002

- Taught English and General Knowledge at a public school in Nam Long

Certified youth instructor at the Canoe Club Rapperswil-Jona – Switzerland

2001 – 2007

- Held weakly courses for children

SKILLS

- Programming: Highly experienced in R, MATLAB, SAS, Mathematica, Macaulay2, Singular, 4ti2
- Languages: German (native), English (fluent), Italian (fluent), French (fluent), Spanish (basic), Thai (basic), Latin

INTERESTS AND ACTIVITIES

- Music: Played the clarinet as a member of the Jona Orchestra (2000 – 2006)
- Sports: Hiking, snowboarding, kayaking, inline skating, tennis
- Traveling: Lived in 7 countries and traveled to ~30 more