

Pierre Nyquist

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EMPLOYMENT **Brown University**, Providence, RI, USA.
Postdoctoral Research Associate, Division of Applied Mathematics. **July 2014 - present**

RUAG Space AB, Gothenburg, Sweden.
Research Assistant, Department of Radio and Space Science. **June 2007 - Aug. 2008**
Summer intern and part-time worker. Worked primarily on the mathematical description, implementation (Matlab) and simulation of a satellite system under development.

EDUCATION **KTH Royal Institute of Technology**, Stockholm, Sweden.
Ph.D., Applied and Computational Mathematics. **May 2010 - June 2014**
Thesis: On large deviations and design of efficient importance sampling algorithms.
Advisor: Prof Henrik Hult.

Chalmers University of Technology, Gothenburg, Sweden.
M.Sc. in Engineering, Engineering Physics. **Aug. 2005 - Feb. 2010**
Completed the program in Engineering Physics (300 hp). Degree includes a M.Sc. in Engineering Mathematics and Computational Science (120 hp), with a specialization in probability and mathematical statistics, and a B.Sc. in Engineering Physics (180 hp).

RESEARCH INTERESTS Probability theory, Applied probability, Large deviations, Monte Carlo methodology, Mathematical statistics, Asymptotics, Stochastic processes, Information theory, Applied mathematics.

- PAPERS AND PREPRINTS
1. A. Budhiraja, **P. Nyquist** (2015). Large deviations for multidimensional state-dependent shot noise processes. *J. Appl. Probab.*, 52(4), 1097–1114.
 2. H. Hult, **P. Nyquist** (2016). Large deviations for weighted empirical measures arising in importance sampling. *Stochastic Process. Appl.*, 126(1), 138–170.
 3. B. Djehiche, H. Hult, **P. Nyquist** (2015). Min-max representations of viscosity solutions of Hamilton-Jacobi equations and applications in rare-event simulation. *Math. Oper. Res.*, accepted with revision (30 pp).
 4. **P. Nyquist** (2015). Moderate deviation principles for importance sampling estimators of risk measures. *Submitted* (23 pp).
 5. J. D. Doll, P. Dupuis, **P. Nyquist** (2016). A large deviation analysis of certain qualitative properties of parallel tempering and infinite swapping algorithms *Submitted*, (49 pp).
 6. B. Djehiche, H. Hult, **P. Nyquist** (2016). Efficient importance sampling for a Markovian intensity model for credit risk. *Preprint, to be submitted*, (22 pp).

ACADEMIC EXPERIENCE **KTH Royal Institute of Technology**, Stockholm, Sweden.
Visiting scholar, Department of Mathematics **Jan. 2016**
Visitor of Boualem Djehiche and Henrik Hult.

University of North Carolina, Chapel Hill, NC, USA.

Visiting scholar, Department of Statistics and Operations Research **Oct. - Dec. 2013**
Visitor of Prof Amarjit Budhiraja.

Visiting scholar, Department of Statistics and Operations Research **June - Dec. 2009**
Research for master thesis. Part of a NSF-funded project on modeling and statistical analysis of breast cancer tumor growth.

ICERM / Brown University, Providence, RI, USA.

Visiting scholar **Oct. - Dec. 2012**
Long-term visitor at the Institute of Computational and Experimental Research in Mathematics (ICERM) for the semester program “Computational Challenges in Probability”.

INVITED TALKS AND PRESENTATIONS

- INFORMS Annual Meeting 2016 - November 2016, Nashville, TN.
- 2016 IISA Conference - August 2016, Corsville, OR.
- Statistics Seminar, Duke University - April 2016, Durham, NC.
- Young European Probabilists (YEP) 2016 - March 2016, EURANDOM, Netherlands.
- INFORMS Annual Meeting 2015 - November 2015, Philadelphia, PA.
- Extreme Value Analysis 2015 - June 2015, Ann Arbor, MI.
- ISyE Seminar, Georgia Tech - April 2015, Atlanta, GA.
- Probability and Statistics Seminar, Boston University - February 2015, Boston, MA.
- Probability Seminar, Brown University - December 2014, Providence, RI.
- Statistics Seminar, Chalmers University of Technology - March 2014, Gothenburg, Sweden.
- 59th ISI World Statistics Congress - August 2013, Hong Kong, China.
- 4th Northern Triangle Seminar - March 2013, Helsinki, Finland.
- STOR Colloquium, UNC Chapel Hill - November 2012, Chapel Hill, NC.
- 13th Stockholm-Uppsala Symposium - May 2011, Uppsala, Sweden.
- 3rd Northern Triangle Seminar - April 2011, St. Petersburg, Russia.

OTHER TALKS AND PRESENTATIONS

- 10th International Workshop on Rare Event Simulation - August 2014, Amsterdam, Netherlands.
- Ph.D. Defense (public), Royal Institute of Technology - May 2014, Stockholm, Sweden.
- Licentiate Seminar, Royal Institute of Technology - February 2013, Stockholm, Sweden.
- Performance Analysis of Monte Carlo Methods - November 2012, Providence, RI (*poster*).
- 9th International Workshop on Rare Event Simulation - June 2012, Trondheim, Norway.
- INFORMS Simulation Society Research Workshop - July 2011, Montreal, Canada (*poster*).

CONFERENCES AND WORKSHOPS

- 2014 Charles River Lectures on Probability and Related Topics - October 2014, Boston, MA.
- Extremes in Space and Time - May 2013, Copenhagen, Denmark.
- Performance Analysis of Monte Carlo Methods - November 2012, Providence, RI.
- Monte Carlo methods in the physical sciences - October 2012, Providence, RI.
- INFORMS Applied Probability Society Conference - July 2011, Stockholm, Sweden.
- Recent developments in mathematical finance - May 2011, Stockholm, Sweden.
- IMS 73rd Annual Meeting - August 2010, Gothenburg, Sweden.
- 6th International Conference on Levy Processes: Satellite Summer School - July 2010, Braunschweig, Germany.

TEACHING EXPERIENCE

Brown University, Providence, RI, USA.

Instructor in the Division of Applied Mathematics. Undergraduate (U) and graduate (G) level.

- APMA 1710: Information Theory (U/G), Fall 2015.

Royal Institute of Technology, Stockholm, Sweden.

Teaching assistant and instructor for various courses given by the Department of Mathematical Statistics. Undergraduate (U) and graduate (G) level.

- SF2701 Introduction to probability and mathematical statistics (U), 2010-2014.

- SF2940 Probability Theory (G), Fall 2011, 2012.
- SF2701 Financial Mathematics (G), Spring 2012, 2013.
- SF2950 Applied Mathematical Statistics (G), Spring 2014.
- SF2943 Time Series (G), Spring 2014.

REFEREE Annals of Applied Probability, Stochastic Processes and their Applications, Journal of Applied Probability, Journal of Theoretical Probability, Bernoulli, Electronic Communications in Probability, Scandinavian Actuarial Journal, ICNAAM.

ADMINISTRATIVE ORGANIZER, KTH Graduate Student Seminar in Applied Mathematics 2011–2013.
SERVICE Conference track host, 16th INFORMS Applied Probability Conference.

HONORS AND AWARDS

- Institute of Mathematical Statistics Travel Award, 2015.
- Markussen Studiefond Research Scholarship, 2014.
- Royal Swedish Academy of Sciences Travel Award, 2012.
- ÅFORSK Travel Award, 2012.
- Adlerbertska Stipendiefonden, awarded for academic excellence at Chalmers 2008/2009.
- Chalmers Mastercard Stipendier, awarded in support of master thesis research, 2009.
- Chalmers Vanner, awarded in support of master thesis research, 2009.
- Donationsstipendierna, awarded for academic excellence at Chalmers 2007/2008.

PROFESSIONAL MEMBERSHIPS AMS, IMS, INFORMS, SIAM, ASA, Bernoulli, Svenska Statistikfrämjandet.

COMPUTER SKILLS Mathematical software: MATLAB (experienced), Mathematica, R (intermediate).
Programming: Some experience with Java and C/C++.
Applications: L^AT_EX, common Windows database, spreadsheet, and presentation software.
Operating systems: Unix/Linux, Windows, Mac OS.

LANGUAGES Swedish (native), English (fluent), French (beginner).

REFERENCES
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