

Ksenia N. Kzyurova

Citizen of Russian Federation



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Education

Duke University MSc (2014), PhD (2017) Statistical Science
Trinity College of Arts & Sciences
Durham, North Carolina (NC), USA

Dissertation : On Uncertainty Quantification for Systems of Computer Models

Advisors: Jim Berger, Robert Wolpert

ITMO University BSc (2009), MSc (2011) Applied Math & Computer Science
Division of Natural Sciences
St.-Petersburg, Russia

Academic appointments

Research associate The University of Sheffield, Mathematics and Statistics
Sheffield, United Kingdom May 2019 — April 2022

Postdoctoral research associate Brown University, Data Science Initiative
Providence, Rhode Island (RI), USA August — December 2018

Postdoctoral fellow King Abdullah University of Science and Technology
Thuwal, Makkah Province, Saudi Arabia September — May 2018

Graduate research assistant Los Alamos National Lab (LANL), CCS-6 Statistical Sciences Division
Los Alamos, New Mexico (NM), USA May — August 2016

Research interests

Data analysis

Bayesian statistical inference

Testing scientific theories with experiments

Analysis of numerical computer simulators with respect to experimental or observational data

Scientific computing for statistical inference

Current application areas

Geophysics, Engineering

Publications

Ksenia N. Kyzyurova. Calibration of Mathematical Computer Models. *Available at <http://kseniak.ucoz.net>*, 2019

Ksenia N. Kyzyurova, James O. Berger, and Robert L. Wolpert. Coupling Computer Models through Linking Their Statistical Emulators. *SIAM/ASA Journal on Uncertainty Quantification*, 6(3):1151–1171, 2018

Irina V. Blinova, Ksenia N. Kyzyurova, and Igor Yu. Popov. Stokes flow driven by a Stokeslet in a cone. *Acta Mechanica*, 225(11):3115–3121, 2014

Software

Ksenia N. Kyzyurova. *LinkedGASP: Linked Emulator of a Coupled System of Simulators: R package version 1.0*. Comprehensive R Archive network (CRAN) repository, 2018

Books/Courses

Ksenia N. Kyzyurova. *Bayesian Metaphysics for Experimental Data (open textbook)*. In preparation, 2019

Ksenia N. Kyzyurova. *Bayesian Analysis of Scientific Computer Simulator Data (open textbook)*. In preparation, 2019

Working manuscripts

Ksenia N. Kyzyurova. Lagrangian Emulator of a Particle-based Model. *In preparation*, 2019

Submitted essays

Ksenia N. Kyzyurova. On Scoring Rules and Predictive Measures. *Rejected*, 2019

Ksenia N. Kyzyurova. Emulation of Computer Models with Multivariate Output. *Rejected*, 2019

Ksenia N. Kyzyurova. On Zero-inflated Output of a Computer Model and its Emulation for Probabilistic Hazard Assessment. *Rejected*, 2019

Teaching appointments

Research and teaching assistant
Durham, NC, USA

Duke University, Department of Statistical Science
August 2012 — August 2017

Bayesian and Modern Statistics (STA 601) ($\times 3$)
Introduction to Mathematical Statistics (STA 611)
Data Analysis/Statistical Inference (STA 101)

Research assistant and teaching instructor
St.-Petersburg, Russia

ITMO University, Department of Mathematics
September 2009 - June 2012

Functional analysis
Mathematical analysis

Awards

US NSF Travel grant awards to participate in

Model Uncertainty: Mathematical and Statistical, SAMSI workshop, Durham, NC, USA, August 2018

Rosshypalooza: Climate meets Statistics workshop, Chicago, IL, USA, July 2016

Uncertainties in the Geosciences: A Workshop on Hazard Analysis, Buffalo, NY, January 2016

OBayes-15 conference, Valencia, Spain, May 2015

SIAM Student travel award to participate in *Uncertainty Quantification (UQ16)* conference, Lausanne, Switzerland, December 2015

Research grant from the city government of St.-Petersburg, Russia; Competitive award for outstanding research proposals, St.-Petersburg, Russia, November 2011

Best MSc students research work, ITMO University, St.-Petersburg, Russia, June 2011

Selected research presentations

On emulation of zero-inflated output of a computer model. *Seminar at Statistical and Mathematical Modeling Working Group*, Brown University School of Public Health, Providence, RI, USA, October 26, 2018

Emulation of computer models with multivariate output. *SIAM conference on Uncertainty Quantification (UQ18)*, Garden Grove, CA, USA, April 16-19, 2018

Bayesian inverse problem in the framework of the linked emulator of a system of computer models. *Seminar at the Department of Statistical Science, Duke University*, Durham, NC, USA, September 12, 2016

Coupling computer models through linking their statistical emulators. *Los Alamos National Laboratory (LANL) Statistical Sciences Seminar*, Los Alamos, NM, USA, May 11, 2016

Coupling computer models through linking their statistical emulators. *SIAM conference on Uncertainty Quantification (UQ16)*, Lausanne, Switzerland, April 5-8, 2016

Linking statistical emulators. 11th International Workshop on Objective Bayes Methodology (OBayes-15), June 1-5, 2015. Valencia, Spain

Professional activities

Reviewer for *Environmetrics*

Student mentor for PhD students, 2016 - 2017, Department of Statistical Science, Duke University, Durham, NC, USA

Programming

R, Matlab, Stan, JAGS, WinBUGS, Mathematica

Familiarity with Java, C/C++, HTML/CSS

Hobbies

Dancing (Ballet school diploma with honors)

Playing the piano (Rimsky-Korsakov music school diploma with honors)

Taiji

Professional Societies

Objective Bayes group of International Society for Bayesian Analysis (ISBA) (*Life-time member*)

Models to Decisions | Decision Making Under Uncertainty (M2D)

Previous memberships

American Statistical Association (ASA), Royal Statistical Society (RSS), Society for Industrial and Applied Mathematics (SIAM), Institute of Mathematical Statistics (IMS), Uncertainty in complex models (UCM), Uncertainty Quantification (SIAG/UQ, GAMM AG UQ)

Referees

Advisors

James O. Berger, co-advisor

Duke University, Department of Statistical Science, Durham, NC, USA

E-mail: berger@duke.edu

Robert L. Wolpert, co-advisor

Duke University, Department of Statistical Science, Durham, NC, USA

E-mail: rlw@duke.edu

James R. Gattiker, mentor

Los Alamos National Laboratory, CCS-6 Statistical Sciences Division, Los Alamos, NM, USA

E-mail: gatt@lanl.gov

Primary collaborators

Elaine T. Spiller, collaborator

Marquette University, Department of Mathematics, Statistics and Computer Science, Milwaukee, WI, USA

E-mail: elaine.spiller@marquette.edu

Abani K. Patra, collaborator

State University of New York at Buffalo, Department of Mechanical and Aerospace Engineering, Buffalo, NY, USA

E-mail: abani@buffalo.edu

E. Bruce Pitman, collaborator

State University of New York at Buffalo, Department of Materials Design and Innovation, Buffalo, NY, USA

E-mail: pitman@buffalo.edu

Marcus Bursik, collaborator

State University of New York at Buffalo, Department of Geological Sciences, Buffalo, NY, USA

E-mail: mib@buffalo.edu

Colleagues

Earl Lawrence

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Joanne Wendelberger

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K. Sham Bhat

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Other colleagues

Gary Larson, PhD groupmate

Statistical Analyst at Social & Scientific Systems, Durham, NC, USA

E-mail: laron.gary@gmail.com

Michael S. Lindon, PhD groupmate

Senior Data Scientist at Tesla, Fremont, CA, USA

E-mail: michael.s.lindon@gmail.com

Christopher D. Glynn

University of New Hampshire, Peter T. Paul College of Business and Economics, Durham, NH, USA

E-mail: Christopher.Glynn@unh.edu