AnnaMelnykova

Last Updated on 13th January 2019

Personal info

Born on 28.02.1994 in
Kiev, Ukraine
Nationality: Ukrainian

Contacts

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Languages

English (fluent)
German (advanced)
French (intermediate)
Russian, Ukrainian
(mother tongues)

IT skills

R: `RCpp`, `RMarkdown`
Python: `numpy`, `scipy`
Notions of **Julia**, **MatLab**
and **Mathematica**
LaTeX, Markdown, `vim`

archlinux

Intro

Currently I am a PhD student in University of Cergy-Pontoise (in co-direction with University of Grenoble Alpes). My thesis is devoted to statistical methods for stochastic diffusions with a degenerate variance coefficient. In particular, I work on parametric inference for fully- and partly observed processes, approximation schemes and hypothesis testing. On more general level, I am interested in stochastic models arising in biological and medical context.

Small collection of my numerical experiments is gathered on my GitHub account.

Education

2017–2020 **PhD candidate** in Mathematics — Université de Cergy-Pontoise
Subject: Statistics for Neuroscience
Supervisors: Eva Löcherbach (Sorbonne Université), Adeline Samson (Université Grenoble Alpes)

2016–2017 **M.Sc.** in Statistics — Université Grenoble Alpes
Thesis: Parametric estimation techniques in hypoelliptic ergodic diffusions
Supervisor: Adeline Samson (Université Grenoble Alpes)

2014–2016 **M.Sc.** in Mathematics — National Technical University of Ukraine "Kyiv Polytechnic Institute"
Thesis: Asymptotic behaviour of solutions of SDEs
Supervisor: Oleg Klesov (NTUU "KPI")

2015–2016 **Exchange student** in Wirtschaftsmathematik (Fin. Math.) — University of Ulm
During my stay I was also employed by University of Ulm as a teacher assistant ("Studentische Hilfskraft") at the undergraduate course "Höhere Mathematik I für Physiker".

2010–2014 **B.Sc.** in Mathematics — National Technical University of Ukraine "Kyiv Polytechnic Institute"

Schools & Internships

12/2018 **Masterclass on Ergodicity of Stochastic Processes** — Angers, France
Markov processes, Coupling Methods, Functional Inequalities,
Gibbs sampling and Quasi-Stationary Distributions

12/2018 **Health Data Challenge** — Aussois, France
Matrix factorization and deconvolution methods to quantify tumor heterogeneity in cancer research

07-08/2018 **CEMRACS 2018** (summer school + 5 weeks research session) — Luminy, France
Numerical and mathematical modeling for biological
and medical applications: deterministic, probabilistic and statistical descriptions.

12/2017 **Winter School on Deterministic and Stochastic models in Neuroscience** — UPS, Toulouse, France
Mean field models, neural field equations,
numerical methods or kinetic models of neuronal networks

02-07/2017 **Master Thesis Internship** — Laboratoire Jean Kuntzmann, Grenoble, France
Statistics for hypoelliptic ergodic diffusions
Supervisor: Adeline Samson (Université Grenoble Alpes)

08/2015 **Summer School "AACIMP" (Machine Learning track)** — Kiev, Ukraine
Basics of computer vision, natural language processing etc.

11-12/2014 **Internship in TAS Insurance Group** — Kiev, Ukraine
Actuarial science, risk modelling, compound interest rates

Scholarships & Grants

2018	**Travel grant to a Master Class organized by Henri Lebesgue Centre in Angers**	200 Euro
2018	**Young researcher grant for participation in CEMRACS research session**	2500 Euro
2016	**IDEX Scholarship for international Master students**	5000 Euro
2015	**Baden-Württemberg Stiftung Scholarship for exchange students**	2400 Euro

Talks & Presentations

Nov. 2018	**Asymptotic behaviour of the parameter estimator for hypoelliptic ergodic diffusions** Demi-journée des doctorants, Grenoble, France	Seminar
Nov. 2018	**Horizontal Gene Transfer: numerical comparison between stochastic and deterministic approach** Groupe de Travail Math-Bio, Grenoble, France	Seminar
Sept. 2018	**Statistical challenges in neuroscience** Stochastic Equations, Limit Theorems and Statistics of Stochastic Processes, Kiev, Ukraine	International conference
June 2018	**Parametric inference for multidimensional hypoelliptic diffusion** DynStoch 2018, Porto, Portugal	International workshop
May 2018	**Parametric inference for multidimensional hypoelliptic diffusion** 50èmes Journées de Statistique, Paris Saclay	National conference

Teaching

2018-2019	**Méthodes statistiques pour la biologie** L3 in UFR IM2AG	36h, TP
2018-2019	**Statistique et Probabilité Inférentielles** L2 in UFR Science et Économie	20h, TD

Publications

1. V. Calvez, S.F. Iglesias, H. Hivert, S. Méléard, A. Melnykova, S. Nordmann (2018) "Horizontal gene transfer: numerical comparison between stochastic and deterministic approaches" (submitted to "ESAIM: Proceedings and Surveys")
2. A. Melnykova (2018) "Parametric inference for multidimensional hypoelliptic ergodic diffusion with full observations" (submitted, preprint available on ArXiV)

Personal interests

Alpine skiing • Swimming • Hiking • Literature • Northern mythology