

AnnaMelnykova



Personal info

Born on 28.02.1994 in
Kiev, Ukraine
Nationality: Ukrainian

Contacts

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France

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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








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

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|-----------|---|---|
| 2017–2020 | PhD candidate in Mathematics
Subject: Statistics for Neuroscience
Supervisors: Eva Löcherbach (Sorbonne Université), Adeline Samson (Université Grenoble Alpes) | Université de Cergy-Pontoise  |
| 2016–2017 | M.Sc. in Statistics
Thesis: Parametric estimation techniques in hypoelliptic ergodic diffusions
Supervisor: Adeline Samson (Université Grenoble Alpes) | Université Grenoble Alpes  |
| 2014–2016 | M.Sc. in Mathematics
Thesis: Asymptotic behaviour of solutions of SDEs
Supervisor: Oleg Klesov (NTUU "KPI") | National Technical University of Ukraine "Kyiv Polytechnic Institute"  |
| 2015–2016 | Exchange student in Wirtschaftsmathematik (Fin. Math.)
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". | University of Ulm  |
| 2010–2014 | B.Sc. in Mathematics | National Technical University of Ukraine "Kyiv Polytechnic Institute"  |

Schools & Internships

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|------------|---|--|
| 12/2018 | Masterclass on Ergodicity of Stochastic Processes
Markov processes, Coupling Methods, Functional Inequalities, Gibbs sampling and Quasi-Stationary Distributions | Angers, France |
| 12/2018 | Health Data Challenge
Matrix factorization and deconvolution methods to quantify tumor heterogeneity in cancer research | Aussois, France |
| 07-08/2018 | CEMRACS 2018 (summer school + 5 weeks research session)
Numerical and mathematical modeling for biological and medical applications: deterministic, probabilistic and statistical descriptions. | Luminy, France |
| 12/2017 | Winter School on Deterministic and Stochastic models in Neuroscience
Mean field models, neural field equations, numerical methods or kinetic models of neuronal networks | UPS, Toulouse, France |
| 02-07/2017 | Master Thesis Internship
Statistics for hypoelliptic ergodic diffusions
Supervisor: Adeline Samson (Université Grenoble Alpes) | Laboratoire Jean Kuntzmann, Grenoble, France |
| 08/2015 | Summer School "AACIMP" (Machine Learning track)
Basics of computer vision, natural language processing etc. | Kiev, Ukraine |
| 11-12/2014 | Internship in TAS Insurance Group
Actuarial science, risk modelling, compound interest rates | Kiev, Ukraine |

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

Conferences:

Aug. 2019	Statistical testing of the covariance matrix rank in multidimensional neuronal models (invited) Conference on Stochastic Analysis and Applications, Risør, Norway	International conference
June 2019	Statistical testing of the covariance matrix rank in multidimensional neuronal models 51èmes Journées de Statistique, Nancy, France	National conference
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

Seminars & Working groups:

April 2019	Statistical testing of the covariance matrix rank in multidimensional neuronal models (invited) Seminar du département DATA, Grenoble, France	Seminar
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

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

Various activities

March 2019	Congrès MATH.en.JEANS 2019 Member of local organizing committee	Grenoble, France
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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)