CédricTravelletti

PhD in Statistics (Machine Learning), MSc ETH in Physics

Personal Information

11.07.1992
Swiss
Unmarried

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Education

2018-2023 — **PhD** in Statistics [summa cum laude] — University of Bern
Machine learning for the natural sciences. Thesis: *"Efficient Gaussian process updating under linear operator data for uncertainty reduction on implicit sets in Bayesian inverse problems"*

2014-2016 — **M.Sc.** ETH in Physics with Honors [Grade: 5.75/6] — ETH Zürich
(Emphasis in theoretical physics)

2011-2014 — **B.Sc.** ETH in Physics [Grade: 5.17/6] — ETH Zürich

Professional Experience

Nov.2018 - Nov. 2022 — **Idiap Research Institute / University of Bern** — Bern, Switzerland
PHD Student. *Teaching assistant for master-level lectures and continuing education program. Learning manager for the "Master AI" program. Supervision of master theses, Scientific adviser in multidisciplinary collaborations.*

Apr.2018 - Oct.2018 — **Deloitte** — Zürich, Switzerland
Quantitative Risk Consultant: Build credit risk models. Perform data munging/cleaning for banks. Developped and implemented a derivative pricing tool based on Monte Carlo methods.

Mar. - Dec. 2017 — **SwissRe** — Zürich, Switzerland
Intern / Temp. Employee: Machine learing for satellite imagery, real-time traffic analytics, simulation of flood on a global scale (parallel + distributed computing). Linux sysadmin tasks, IT support.

2016 - 2018 — **Lycée Collège de la Planta** — Sion, Switzerland
Substitute Teacher: One long term (3 month) full time engagement and various shorter ones.

Academic Projects and Teaching

Master AI: Learning Manager — IDIAP / UniDistance
Created an taught e-learning content (Jupyter notebooks) for "Foundations in statistics for artificial intelligence". https://www.master-ai.ch/

Research Visits — Cornell, NTNTU Trondheim
1 month visit at Cornell University, working on cost-effective path-planning for data collection in inverse problems.
1 month visit at NTNU Trondheim, developing algorithms for autonomous underwater sampling.

Interdisciplinary Collaborations
Responsible for collaboration with Oeschger Center: Large-scale Kalman filtering for paleoclimate reconstruction.

Reviewing Activities
Reviewer for peer-reviewed journals and conferences: *Journal of Multivariate Analysis, Mathematical Geosciences, Water Resources Research, AISTATS 2022*

Technical and scientific skills

Strong analytical and quantitative skills. Familiarity with computer programming and data analysis.

Machine Learning / Statistics:	Bayesian Learning, Active Learning, Large-scale Inverse Problems, Bayesian Optimization, Kernel Methods, Computational Statistics, Classical Statistics, Probability Theory.
Mathematics:	Real and Complex Analysis, Commutative Algebra, Group/Representation Theory, Algebraic Topology, Differential Geometry, Functional Analysis.
Theoretical Physics:	General Relativity, Quantum Field Theory, Statistical Physics, Quantum Information Theory, String Theory.
Experimental/Applied Physics:	Laboratory work, Data Analysis, Quantum Information Processing, Laser Physics, Astrophysics.
Computer Skills:	Python, C, C++, R, Matlab, Mathematica, Linux/Bash, SQL, PyTorch, Docker Cloud Computing (Azure, GoogleCloud), High Performance Computing Satellite image processing (GoogleEarthEngine).

Languages

French	native language
German	professional working proficiency
English	full professional proficiency
Italian	basic written comprehension

Publications and Selected Talks

1. T. O. Fossum, C. Travelletti, J. Eidsvik, D. Ginsbourger, and K. Rajan, *Learning excursion sets of vector-valued Gaussian random fields for autonomous ocean sampling*, The Annals of Applied Statistics, 15 (2021), pp. 597 – 618
2. C. Travelletti, D. Ginsbourger, and N. Linde, *Uncertainty quantification and experimental design for large-scale linear inverse problems under gaussian process priors*. arXiv 2109.03457 (Accepted to SIAM JUQ), 2022
3. C. Travelletti and D. Ginsbourger, *Disintegration of gaussian measures for sequential assimilation of linear operator data*. arXiv 2207.13581 (Submitted to EJS), 2022
4. C. Travelletti, *End to end gp-based inversion of a mass density field from gravimetric measurements*. SIAM Conference on Uncertainty Quantification, https://meetings.siam.org/sess/dsp_talk.cfm?p=119544, 2022
5. ——, *Universal inversion: a framework for infusing expert knowledge in bayesian inverse problems*. SIAM conference on Computational Science and Engineering, https://meetings.siam.org/sess/dsp_talk.cfm?p=124918, 2023