

Vadim BERTRAND

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Grenoble area
France



1st year PhD student in Oceanography – Master's Degree in Statistics – Software Engineer

EDUCATION

- 2024- **PhD** | Institut des Géosciences de l'Environnement, Team **MEOM**
Stochastic Modelling of Drifting Object Trajectories at the Ocean Surface using Machine Learning
Supervised by Julien Le Sommer, Emmanuel Cosme and Adeline Leclercq Samson
→ Implementing the Python package [sealagrangiax](#), relying on [diffrax](#) (and more)
- 2023 **Master's Degree in Statistics** | Université Grenoble Alpes – IM²AG
Ranked 1st, Graduated with High Honors
Bayesian statistics, Computational statistics, Spatial statistics, Operations research and optimization, Non-parametric and functional estimation, Supervised and unsupervised learning
- 2014 **Engineering Degree** | Grenoble INP – Phelma / Ensimag
Signal processing, Algorithms and programming, Graph theory, Information theory

ACADEMIC AND PROFESSIONAL EXPERIENCE

- 2023 **Research Engineer** | Institut des Géosciences de l'Environnement, Team **MEOM**
Variational cyclogeostrophic inversion for estimating ocean surface currents
Supervised by Emmanuel Cosme and Julien Le Sommer
→ Implemented the Python package [jaxparrow](#), leveraging JAX
- 2023 **Research Internship** | TIMC – Team Models and Algorithms for Genomics
Exploration of joint deconvolution algorithms for omic data ([report](#), [poster](#))
Supervised by Magali Richard, CNRS Researcher
- 2022-2023 **Mentored Master's Project** | Université Grenoble Alpes – IM²AG
Effect of anthropogenic noise on narwhals behavior ([related study](#))
Supervised by Adeline Leclercq Samson, UGA Full Professor
- 2022 **Research Internship** | Laboratoire Jean Kuntzmann – Team Données, Apprentissage et Optimisation
Deep generative learning for next-generation drugs ([report](#))
Supervised by Sergei Grudin, CNRS Researcher
- 2016-2021 **Software Engineer** | Inria / GIPSA-Lab – Team Dynamics and Control of Networks
Supervised by Carlos Canudas-de-Wit, CNRS Researcher
→ Developed the web-application [GTL-VILLE](#), collecting, estimating and predicting road traffic indicators in real time in the Grenoble Metropolis ([subsequent publication](#))

TEACHING

- 2024 **Statistics (Practical Session)** | Université Grenoble Alpes - Bachelor in Biochemistry

INTERNSHIP SUPERVISION

- 2024 **Léo Boux de Casson (Bachelor, École Normale Supérieure de Lyon)**, with Julien Le Sommer
Eulerian comparison of lagrangian drifter velocities and reconstructed sea surface currents within the SWOT swath in the Mediterranean sea

SCIENTIFIC CONTRIBUTIONS

- 2024 **Python Package** | [sealagrangiax](#) *A stochastic Lagrangian trajectories sampler for ocean surface drifters*
- 2024 **Oral Presentation** | *Cyclogeostrophic inversion for estimating Sea Surface Currents from SWOT altimeter data*, 30YPRA-OSTST, Montpellier, France
- 2024 **Poster Presentation** | *Cyclogeostrophic inversion for estimating Sea Surface Currents*, EGU, Vienna, Austria. [10.5194/egusphere-egu24-17489](#)
- 2023 **Python Package** | [jaxparrow](#) *A package for computing the inversion of the cyclogeostrophic balance based on a variational formulation approach*
- 2023 **Poster Presentation** | *Scoring and ranking strategies to benchmark cell type deconvolution pipelines*, JOBIM and ISMB, Nice and Lyon, France. [PDF](#)
- 2018 **Journal Article** | G. Casadei, V. Bertrand, B. Gouin, C. Canudas-de-Wit, *Aggregation and travel time calculation over large scale traffic networks: An empiric study on the Grenoble City*. Transportation Research Part C: Emerging Technologies, 2018. [10.1016/j.trc.2018.07.033](#)

MISCELLANEOUS

Living languages

English: fluent, Spanish: notions

Programming languages

Python (JAX, PyTorch, NumPy, Xarray, etc...), Julia, R ; Git ; Shell scripting

Daily hobbies

Touch Rugby (what's that???), Running, Ski touring, Diving (not enough...)