

# Vadim BERTRAND

<https://github.com/vadmbertr/>

+33 6 14 62 32 18  
vadim.bertrand@gmail.com  
Grenoble area  
France



1<sup>st</sup> 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 (CNRS Researcher), Emmanuel Cosme (UGA Full Professor) and Adeline Leclercq Samson (UGA Full Professor)  
→ Implementing the Python package [pastax](#)
- 2023 **Master's Degree in Statistics** | Université Grenoble Alpes – IM<sup>2</sup>AG  
*Ranked 1<sup>st</sup>, 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 (UGA Full Professor) and Julien Le Sommer (CNRS Researcher)  
→ 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 – IM<sup>2</sup>AG  
*Effect of anthropogenic noise on narwhals behavior* (as part of [this larger 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 Grudinin (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** | [pastax](#) *Parameterizable Auto-differentiable Simulators of ocean Trajectories in jAX*
- 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](https://doi.org/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](https://doi.org/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

### Hobbies

Rugby (2 years in sports study) and now Touch rugby ([what's that???](#)), Running, Ski touring, Diving (not enough...)