Serguei Ossokine, Ph.D

Data Scientist

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Data scientist with 7+ years of experience in mathematical/statistical modeling, data analysis, and software engineering.

WORK EXPERIENCE

Scientific Programmer at Max Planck Institute for Gravitational Physics **Potsdam, Germany**

Jul 2019 - Jul 2023

- **Spearheaded the development** of state-of-the-art code to model gravitational waves from binary black hole systems, **improving efficiency and accuracy 10x**, now being used by LIGO for data analysis.
- **Designed and implemented an end-to-end ETL data processing Python pipeline** to incorporate theoretical results and data from supercomputer numerical simulations aggregated from multiple sources across many different scientific groups. This pipeline **accelerated the development of new models by >200%**.
- Performed full **Bayesian parameter estimation and model selection** for headline publications.
- **Led** the creation of a Python framework to **facilitate automatic parameter selection for Bayesian analysis** of LIGO data, streamlining the process.
- Created impactful **scientific visualizations** exceeding 400k views and **garnering media attention** from outlets like Scientific American.
- **Mentored 5+** undergraduate/graduate students during various projects, fostering their scientific growth and expertise.

Postdoctoral Scholar at Max Planck Institute for Gravitational Physics **Potsdam, Germany**

Sep 2015 - Jul 2019

- **Developed an R code** to compute equilibrium solutions for boson stars, **enabling the first comparison** of binary boson star simulations with different numerical codes.
- Contributed to **large-scale C/C++ scientific code-bases** for numerical modelling gravitational waves, including parallelized HPC codes, such as LALSuite and Spectral Einstein Code, with the results used in >50 of publications.
- Created a codebase to benchmark the accuracy of gravitational wave models, **streamlining comparisons** of different models.

EDUCATION

Ph.D. in Astronomy and Astrophysics at University of Toronto

Sep 2010 - Aug 2015

Thesis: Modelling precessing binary black hole systems

M.Sc. in Astronomy and Astrophysics at University of Toronto

Sep 2009 - Aug 2010

BSc in Astronomy and Astrophysics at University of Toronto

Sep 2005 - Aug 2009

SKILLS

Programming languages

Python | C/C++ | R | SQL | bash | Fortran | Javascript

Python scientific/ML stack

numpy | scipy | cython | numba | pytorch | tensorflow | MLFlow | Airflow | W&B

Cloud computing

AWS | Terraform | CloudFormation

ETL

PostgreSQL | dlt

HPC

MPI | OpenMP

Apps

Git | CI/CD tools | Docker | Linux | Office

LANGUAGES

English
Native speaker

Russian
Native speaker

French
Intermediate

German
Beginner