



VSEVOLOD NEDORA, PH.D.

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I am a highly motivated Data Scientist and Researcher with 6+ years of experience in computational modeling, data analysis, and software development, complemented by a Ph.D. in Theoretical Astrophysics. My background spans developing high-performance scientific software, numerical simulations, and machine learning models, including 'PyBlastAfterglow,' which has been adopted by multiple research groups.

I am now seeking to transition into the energy or engineering industries, bringing my expertise in coding, data-driven problem-solving, and cross-functional collaboration to impactful projects. Skilled in Python, C++, and deep learning, I am passionate about driving innovation in these industries with data science and machine learning.

KEY SKILLS

- *Programming & Software Development:*
 - **Python (5+ years):** Skilled in data analysis, modeling; proficient with: NumPy, scikit-learn, SciPy, PyTorch.
 - **C++ (4+ years):** Expertise in high-performance computing, optimizing algorithms for computational efficiency.
 - **Others:** SQL (Basic), GitHub Actions, Scripting, CI/CD pipelines.
- *Data Science & Machine Learning:*
 - **Machine Learning:** Experience in developing models employing regression, decision trees, deep neural networks. Proficient in predictive analytics, model training, tuning, assessing explainability.
 - **Numerical Modeling:** Designed and enhanced the open-source code 'PyBlastAfterglow;' experienced with computational fluid dynamics.
 - **Data Visualization and Reporting:** Skilled in creating insightful visual representations of data using Matplotlib and Plotly libraries.
 - **Data Analysis:** Expertise in time-series and image data cleaning, feature engineering, and building analysis pipelines for large datasets (30+ terabytes).
- *Project Management & Leadership:*
 - **Supervised 100+ students and 2 PhD candidates.**
 - **Led 3 multi-institutional collaborations;** experienced in team management, delegation, and stakeholder communication.
- *Business & Strategic Communication*
 - **Experience presenting at international conferences,** writing peer-reviewed publications, and securing buy-in from stakeholders and professors for funding.

PROFESSIONAL EXPERIENCE

Max-Planck-Institut für Gravitationsphysik, Potsdam, Germany 2021 – Present

Postdoctoral Researcher and Data Scientist

- Led the development of 'PyBlastAfterglow,' an open-source code for modeling electromagnetic transients used by 3+ research teams.
- Ported computationally intensive sections of the code from Python to C++ to achieve a tenfold speed increase. Added image generation features.
- Collaborated with international research teams, co-authoring 7+ high-impact journal articles and leading software-based research efforts.
- Developed a surrogate model using conditional variational autoencoders for Gamma-ray burst afterglows employed now as a baseline model by the team.

Friedrich-Schiller-Universität, Jena, Germany 2018 – 2021

Researcher and Ph.D. Candidate in Theoretical Astrophysics

- Originated 'PyBlastAfterglow,' and released Python-based version.
- Developed and maintained data pipelines for processing 30+ terabytes of numerical fluid-dynamics simulations, supporting multiple research groups.
- Supervised undergraduate and master's students in their research projects.

MACHINE LEARNING & INDUSTRY PROJECTS

MLOps Pipeline for Electricity Price Forecasting Personal Project | 2024

- Designed and implemented a CI/CD pipeline to forecast day-ahead electricity prices in Germany using weather and energy data.
- Documented and shared project progress via Medium articles and LinkedIn posts to build visibility and personal branding in the data science community.

Gamma-Ray Burst Surrogate Model 2019 – 2023

- Developed a conditional variational autoencoder model trained on a large dataset from astrophysical simulations to create a surrogate model.
- Utilized PyTorch for the deep learning model and GitHub for version control and collaboration with other research teams.

EDUCATION

Friedrich-Schiller-Universität Jena, Jena, Germany 2021

Ph.D. in Theoretical Theoretical Astrophysics Grade: Magna Cum Laude

Universität Bonn, Germany 2018

Master's degree in Astrophysics

LANGUAGES: English (fluent); Russian (fluent); German (intermediate).

PERSONAL BRANDING: active on LinkedIn (ML Top Voice); Publish on Medium.