

# Vsevolod Nedora, Ph.D

Researcher, Data Scientist



homepage



github



linkedin



vsevolod.nedora@gmail.com



0154239433

## EXPERIENCE

### MAX-PLANCK-INSTITUT FÜR GRAVITATIONSphysik

| POSTDOCTORAL RESEARCHER

November 2021 – Current | Potsdam, Germany

- I developed and maintained multiple Python and C++ modelling tools, including the `PyBlastAfterglow` code that has been used for multiple peer-reviewed publications.
- Working with large collaboration, including GRANDMA collaboration, analyzing observational data and performing model prediction.

### FRIEDRICH-SCHILLER-UNIVERSITÄT

| RESEARCHER

October 2018 – November 2021 | Jena, Germany

- I post processed and analyzed Big Data outputs of large hydrodynamic simulations, extracting and statistically analyzing physical quantities.
- I taught multiple classes on a graduate and undergraduate level, and worked with individual students on their graduate projects.
- I performed end-to-end statistical analysis of properties of matter ejected at neutron star mergers, performing data collection, cleaning, analysis and modeling using regression models, and publishing results in a peer-review journal.

## PROJECTS

### BIG DATA PROCESSING PIPELINE

| PYTHON

2021

- I designed a pipeline to post process an output from large numerical hydrodynamic simulations of colliding neutron stars. The pipeline collates various output files, extracts physical information and creates descriptive figures
- The pipeline was used by my team for several peer-reviewed scientific publications

### STATISTICS MODEL FOR EJECTED MATTER

| PYTHON

2022

- I designed a set of tools to statistically study the properties of matter ejected in colliding neutron stars, and created a model that performs better than others, using reduced  $\chi^2$  statistics and residuals analysis.
- The model has been used by multiple groups for Bayesian and ML analysis.

## EDUCATION

### FRIEDRICH-SCHILLER-UNIVERSITÄT JENA

PH.D. IN THEORETICAL PHYSICS

October 2018 – November 2022 | Theoretisch-Physikalisches Institute, Jena, Germany

Grade: Magna cum laude

### RHEINISCHE FRIEDRICH-WILHELMS-UNIVERSITÄT BONN

MASTER'S DEGREE IN ASTROPHYSICS

September 2016 – October 2018 | Argelerlander Institute for Astronomy, Bonn, Germany

Cum. GPA: 2.0 / 1.0

### FAR-EASTERN FEDERAL UNIVERSITY

BACHELOR'S DEGREE IN PHYSICS

September 2013 – October 2018 | Far-Eastern Federal University, Vladivostok, Russia

Cum. GPA: 5.0 / 5.0

## SKILLS

Numerical modeling & Simulations  
Statistical Modeling  
Data Visualization  
ML Algorithms  
Clustering & Classification  
High-performance computing

Analytical thinking  
Problem solving  
Project management  
Public speaking  
Technical writing  
Teaching  
Collaboration  
Communication

## TECHNICAL EXPERTISE

Languages

• Python • C++ •  $\text{L}^{\text{A}}\text{T}_{\text{E}}\text{X}$  • SQL

Packages and services:

ScikitLearn • Tensorflow •  
PyTorch • Numpy • scipy •  
Pandas • Plotly/Dash • HDF5 •  
Git • Docker

Mathematical methods:

Neural networks • Bayesians  
statistics • Gaussian processes  
• ODEs • Monte-Carlo

## REFERENCES

**Tim Dietrich**, Professor,  
Max-Planck-Institute Für  
Gravitationsphysik

✉ tim.dietrich@aei.mpg.de

☎ +49 331 567 7263