NICOLAS CHAGNET

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NicolasChagnet | nchagnet

EXPERIENCE

Research Scientist and Teaching Assistant

Leiden University

09/2020 – Ongoing | Leiden, The Netherlands

- **Numerical simulations:** Simulated periodically ondulating black holes. Leveraged the computational power of the Dutch national supercomputer Snellius.
  - *Languages:* Python (in-house BVP solver), Julia, C (PETSc).
- **Model building:** Created mathematical models from theory to match the patterns in a large dataset (hydrodynamic behaviour of relativistic fluids). Validated and refined models based on numerical outcomes and theoretical considerations.
  - *Skills:* Advanced mathematics, data analysis, reporting on data
- **Deliverables:** Authored and published articles in peer-reviewed academic journals showcasing results and data visualization. Presented research findings at international scientific conferences (Stockholm, Trieste).
  Publications: inspirehep.net/authors/1944891 .
- Taught the **Complex Networks** tutorials class for four semesters.

Research intern in Theoretical physics

Leiden University, University of Amsterdam

02/2018 – 08/2020 | The Netherlands

- **Project 1:** Analyzed the distance metric between quantum circuits and established a connection to the geometry of spacetime.
  - *Skills:* Advanced mathematics, pattern recognition, interdisciplinary thinking.
- **Project 2:** Established a novel model for a stable quantum electron star, verified using numerical simulations.
  - *Skills:* Scientific computing (Julia, Mathematica), innovative thinking.

Research intern in Applied physics

Swiss Plasma Center

05/2017 – 08/2017 | Lausanne, Switzerland

- Improved component (thermal detectors) of a large collaborative project (fusion reactor experiments)
- Embedded systems programming for automation of calibration bench.

PERSONAL PROJECTS

Data science and Machine Learning — scikit-learn | TensorFlow

Experience in analysis, cleaning datasets, and building predictive models.

Ising simulations — Monte-Carlo | Genetic algorithms

Simulations of phase transitions in statistical physics.

Coding projects — Python | Rust | Web scraping

Experience building tools, platforms with various programming languages.

SKILLS

Programming languages and tools
Proficiency in **Python**, **Julia**.
Experience in **Rust**, C/C++, HTML/CSS, **Javascript**.
Familiarity with Linux, Shell scripting, LaTeX, Databases (**SQL**, NoSQL)

Interdisciplinary background
Strong background in Mathematics, Physics and Computer Science.

Communication
Great communication skills from teaching experience and research collaborations.

Challenger
Sharpened problem-solving skills from extensive research experience and eager to face new challenges.

EDUCATION

Ph.D. in Theoretical Physics

Leiden University

09/2020 – Ongoing | Leiden, NL

M.Sc. in Theoretical Physics

ENS de Lyon

09/2017 – 08/2019 | Lyon, FR

LANGUAGES

English — Bilingual ●●●●●

French — Native ●●●●●

Italian — Intermediate ●●●○○

Dutch — Beginner ●○○○○