Gijs Molenaar

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Summary

Versatile engineer at the intersection of software engineering, data science, and scientific computing. Proven track record of transforming prototypes into production-ready systems at scale. Thrive in diverse, cross-functional teams tackling complex technical challenges—quickly mastering new domains and driving solutions from concept to deployment.

Experience

Spotify, Software Engineer

- Fabric team: Built and maintained service mesh, service discovery, and service-to-service authentication/authorization infrastructure
- ATC team: Developed Edge perimeter systems for attack prevention, scraping detection, and load balancing
- Responded to high-impact incidents affecting platform reliability
- Maintained mission-critical legacy systems running since Spotify's inception

Amsterdam, Netherlands
Jan 2022 – present
4 years 2 months

DPG Media, Machine Learning Engineer

- Developed recommendation engine using machine learning techniques

Amsterdam, Netherlands
Jan 2021 – Dec 2021
1 year

Pythonic.nl (Freelance), Software Engineer & Consultant

- Delivered high-quality software products for clients including Alliander, ASTRON, CWI, SARAO, SETI, and SURFnet
- Specialized in Python, scientific computing, and AI applications
- Developed deep reinforcement learning solutions for electricity grid optimization (Alliander)
- Built algorithmic perfume design system using collaborative filtering (Scentronix)
- Containerization work for SETI signal search (Breakthrough Listen)

Amsterdam, Netherlands
Jan 2011 – Dec 2021
11 years

University of Amsterdam, Software Engineer

- Seconded to the Square Kilometre Array (SKA) project in South Africa
- Developed KERN radio astronomy software suite
- Built APERTIF software packaging and cluster tooling
- Created modular data reduction pipelines for ASTERICS project

Amsterdam, Netherlands
Jan 2012 – Dec 2018
7 years

Education

PhD   **Rhodes University**, Radio Astronomy / Computer Science

- Thesis: Design patterns and software techniques for large-scale, open and reproducible containerized data reduction pipelines

South Africa
2015 – 2020

MSc   **University of Amsterdam**, Artificial Intelligence

- Thesis: Sonic Gesture
  - Computer vision MIDI translation

Amsterdam, Netherlands
2009 – 2011

Publications

Design patterns and software techniques for large scale, open and reproducible data reduction

Gijs Molenaar

(PhD Thesis)

2021

KLIKO - the scientific compute container format

Gijs Molenaar, et al.

(Astronomy & Computing)

2018

KERN - The radio astronomy software suite   2018
Gijs Molenaar, et al.
(Astronomy & Computing)

The LOFAR transient pipeline   2015
et al.
(Astronomy & Computing)

PySE: Software for Extracting Sources from Radio Images   2018
et al.
(Astronomy & Computing)

Projects

MonetDBe-Python   2020
- Embedded database with SQLite-like interface and Numpy/Pandas support

eduVPN Linux Client   2020
- VPN client and Python API for educational institutions

python-snap7   2020
- Ethernet communication library for Siemens S7 PLCs

Vacuum-cleaner   2018
- Radio telescope data deconvolution using deep learning

Skills

Programming: Python, C++, Java, Rust

Data & ML: NumPy, Pandas, PyTorch, TensorFlow, scikit-learn, Deep Learning

Infrastructure: Google Compute Engine, Docker, Kubernetes, Linux, CI/CD

Domains: System Engineering, Software Engineering, Scientific Computing

Certifications

AWS Certified Solutions Architect - Associate   June 2021

Certified EU Drone Operator A1/A2/A3   May 2021

Cisco Certified Network Associate (CCNA)   Jan 2002

Languages

Dutch: Native

English: Full professional proficiency