Stephan Seeger

Physicist

Contact

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I am looking …

… for a job

- as a machine learning engineer
- full time, in permanent employment

ML-Expertise

Python, C++, SQL, bash	★★★★★
PyTorch, TensorFlow	★★★★☆
Pandas, NumPy, Scikit-Learn, SciPy, Dask	★★★★☆
Matplotlib, Plotly, Bokeh	★★★★☆
Docker, Kubernetes, Helm	★★★★☆
AWS, GCP, Azure	★★★★☆
Git, VS Code, Visual Studio	★★★★★
NLP, Reinforcement Learning, GANs, GNNs	★★★★☆

WORK EXPERIENCE

Machine Learning Engineer   *12/2021 - now*
Independent education, Westerstede (Germany)

- Languages: Python, JavaScript, C++, SQL, bash
- Deep learning libs: PyTorch, TensorFlow
- ML libs: Pandas, NumPy, Scikit-Learn, SciPy, Dask
- Quantum computing libs: Qiskit, PennyLane
- Visualization: Matplotlib, Plotly, Bokeh
- Web frameworks: Django, Flask, FastAPI
  Web app frameworks: Streamlit, Gradio, Dash
- Cloud computing: AWS, GCP, Azure
- Containerization: Docker, Kubernetes, Helm
- Infrastructure as Code: Ansible, Terraform
- Tools: Git, VS Code, GitHub Copilot, W&B
- NLP: Hugging Face Transformer, GPT, Copilot, ASR (Whisper), TTS, NLTK, spaCy, LangChain, LlamaIndex, PEFT, QLoRA, RAG
- Supervised: *Classical*: Linear/Logistic Regression [Ridge/Lasso/Elastic Net], SVM, XGBoost, k-NN); *Neural Network*: FNN, CNN, RNN [LSTM, GRU], …
  Unsupervised: Autoencoder, PCA, k-means, …
  Misc: Reinforcement Learning, GANs, GNNs, …

Senior GNSS R&D Engineer   *01/2018 - 11/2021*
Caterpillar Trimble Control Technologies, Trimble Terrasat, Munich (Höhenkirchen, Germany)

- Languages: C++, MATLAB, SQL, bash
- Multiantenna GNSS solutions
- Sensor fusion of GNSS with inertial sensors and video-based systems (visual odometry, SLAM)
- High precision GNSS solutions under extreme vibrations on construction machines
- Implementation of a fully automatic and via a meta-JSON format freely configurable evaluation system for hyperparameter optimization that is based on parallel processing of hundreds of GNSS datasets and arbitrary JSON configurations of the GNSS software

Receiver GNSS Engineer   *01/2012 - 12/2017*
Trimble Terrasat, Munich (Höhenkirchen, Germany)

- Languages: C++, MATLAB, bash
- Integration of the Chinese satellite navigation system Beidou and Trimble's ground-based pseudolite concept into the existing RTK software
- Major contributions to the generation of a new GNSS receiver software: Kalman filter processing of differential phase observations and ambiguity resolution via weighted averaging of best integer ambiguity candidates; infrastructure: observation data structure, simulation of GNSS observations,

output of diagnostic information and its MATLAB visualization
- Usage of ionosphere information or a starting position for fast RTX position convergence after losing all carrier phase signals or after restarting the GNSS receiver
- Development of Trimble's post-broadcast integrity concept for RTX corrections

Network GNSS Engineer — *12/2007 - 12/2011*
Trimble Terrasat, Munich (Höhenkirchen, Germany)
- Languages: C++, MATLAB, bash
- Major contributions to Trimble's global RTX real-time GNSS correction service for precise satellite navigation positioning
- Estimation and ambiguity resolution of differential code-phase and pure phase satellite clock parameters
- Ambiguity resolution of satellite orbits

GNSS SW-Engineer — *09/2003 - 11/2007*
Leica Geosystems, Heerbrugg (Switzerland)
- C++-implementation of core algorithms (GPS & Glonass orbit computations, ambiguity resolution) of Leica's regional GNSS reference station software
- Research & development on the European satellite system Galileo in the framework of the EU-supported research project ARTUS

Research Assistant — *10/1996 - 12/2002*
Chair for Optics, University Erlangen-Nuremberg
- Research & development on calibration of 3D-sensors as well as registration and 3D visualization of hierarchical triangle meshes
- Coordination and presentation of a project for the registration of 3D datasets in the collaborative research center SFB 603

EDUCATION

Study of Physics — *10/1989 - 11/1995*
Friedrich-Alexander University Erlangen-Nuremberg
- Thesis: „1+1 dimensional QCD on the Circle in Axial and Palumbo Gauge "
- Grade: 1.73

Abitur — *07/1981 - 06/1988*
Gymnasium Westerstede
- Advanced courses in mathematics and physics