



Marko Pacak

Senior Software Engineer
AWS Certified Developer

Contacts / Portfolios

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Languages

Italian	native / bilingual proficiency
English	full professionally proficiency
German	professional working proficiency
Bosnian	native / bilingual proficiency

Born: 01.06.91 Nationality: Swiss / Bosnian

Contributions to

numpy/numpy
pandas-dev/pandas
pytest-dev/pytest

Professional Experience

Galeria Kaufhof Karstadt GmbH Senior Software Engineer / Berlin (Germany), since 09.2022

[aws](#), [python](#), [nodejs](#), [docker](#), [jenkins](#), [nosql](#), [terraform](#)

- Designed and developed scalable REST API (Typescript, AWS API Gateway, Lambda, ECR, ECS/Fargate, DynamoDB)
- Domain-Driven-Design approach on business-logic development.
- Decoupled years-old monolith into performant event-driven service on AWS (ECS/Fargate, S3, Lambda, SQS)
- Developed ETL pipeline processing e-commerce data (S3, Lambda)
- Improved jenkins pipeline automating build/push of containers to EC Registry
- Orchestrated/monitored e-commerce infrastructure during peak-times, e.g. black-friday (ECS/Lambda/Autoscaling)

NextBigThing AG Senior Software Engineer / Berlin (Germany), 09.2021 - 09.2022

[iot](#), [python](#), [docker](#), [django](#), [flask](#), [sqlalchemy](#), [gitlab-ci](#), [numpy](#), [pandas](#), [aws](#), [grafana](#), [postgresql](#), [terraform](#)

- Designed scaling REST micro-services (Django/Flask, AWS API Gateway, Lambda, EC2, AutoScaling, Redis)
- Programmed ETL pipelines processing sensor data (Pandas, IoT Core, Kinesis Streams, Lambda, S3)
- Managed and improved CI/CD pipelines (GitLab CI, AWS CodePipeline)
- Designed scalable event-driven solutions and endpoints for IoT services, managing up to 6'000 requests/second over HTTP/MQTT (AWS IOT Core, API Gateway, Kinesis, ECS, Lambda, SQS, SNS, S3, RDS, Cognito)
- Parallelization of cpu-heavy transformations with multiprocessing
- Mentored the team on AWS services
- Helped create a unified framework (back-End template in IaC) to quickly set-up event-driven data apps; used by more than 5 ventures in NBT
- Benchmarking frameworks and services (Pandas vs PySpark, Redis vs DynamoDB)

Freelance Software Engineer Berlin (Germany) / Switzerland, 03.2018 - 09.2021

• **Bryter GmbH** 06.2020 - 09.2021 # [java](#), [kotlin](#), [docker](#), [gitlab-ci](#), [aws](#), [openfaas](#)

- Developed the bryter platform/framework as foundation to develop integrations (single computational units)
- Integrated 3rd party APIs: DocuSign, iManage, British commerce register...
- Mentored external developers on how to use the framework
- Helped improve multiple version of the Bryter framework that is now used by more than 50 clients worldwide
- Connected integrations into state machine workflows (AWS Lambda / Openfaas)

• **NextBigThing AG** 01.2020 - 09.2021 # [iot](#), [python](#), [django](#), [flask](#), [gitlab-ci](#), [docker](#), [pandas](#), [aws](#), [postgresql](#), [c++](#)

- Designed REST micro-services: algorithms/calculations of energy consumption and generation (AWS Lambda/EC2)
- Developed framework for data scientist for quickly analysing data-sources (Pandas, Numpy, EC2, Lambda)
- Designed end-to-end solution and back-end services for the IoT industry (Python, Pandas, AWS Cognito, Lambda, EC2, SQS, RDS)
- Developed embedded software for reading sensor data (Python, METR M-Gate, Raspberry)

• **Digital Career Institute GmbH** 09.2020 - 02.2021 # [node](#), [typescript](#), [react](#)

- Programming teacher for a web-development curriculum
- Tutored students on typescript and version control system

- **Auxolar GmbH** 03.2018 - 02.2021 # [iot](#), [python](#), [c++](#), [django](#), [postgresql](#), [embedded](#), [make](#)
 - Developed algorithms for remote devices: management/monitoring of heating, smart-submetering, ..
 - Developed embedded C++/python components deployed on remote boards (e.g: raspberry or METR M-Gate)
- **Assetmax AG** 06.2018 - 06.2019 # [python](#), [java](#), [it-sec](#), [spring](#), [apache tomcat](#), [aws](#), [postgresql](#)
 - Integrated the Assetmax software in banking systems (on-site planning of infrastructure and deployment strategy)
 - Developed the Assetmax software (Java, Python, AWS)
 - Further hardened the Assetmax software (collaboration with external Security partners)

Assetmax AG Software Engineer / Lugano-Zurich (Switzerland) 06.2017 - 06.2018

[python](#), [java](#), [it-sec](#), [angular](#), [spring](#), [apache tomcat](#), [aws](#), [postgresql](#), [microsoft sql-server](#)

- Developed micro-services (Java, Spring, On-Premise Servers, AWS EC2, ELB)
- Started migration of home-made framework into Spring web-services
- Designed APIs for financial calculations, asset management (Java/Python, On-Premise Servers, Lambda, EC2)
- Use of parallelization for cpu-heavy calculations
- Followed Domain-Driven-Design principles as per strict requirements in the banking industry in order to facilitate integration with external services
- Managed external front-end teams
- Integrated authentication protocols in banking applications: OAuth, Kerberos, SPNEGO, ...
- Integrated 3rd party API into Assetmax software: Bloomberg, SIX, ...
- Ran penetration attacks and hardened banking system: worked with one of the largest IT-Sec companies in Europe
- Helped automate the release of the Assetmax software within banking networks (Python scripting / tooling)
- Optimization and scaling of SQL DB

IQ Center SA / Cloudbead SA Junior Software Engineer / Lugano (Switzerland) 07.2016 - 06.2017

- Developed a low latency file-management-sync application on AWS (EC2, S3, Lambda)

BSI Bank SA (now EFG Bank) Back-Office Employee / Lugano (Switzerland) 01.2013 - 09.2013

- Automated queries for customer data retrieval in PLSQL
- Automated processes/queries on the banking platform Avaloq

Education

- **Bachelor of Science in Computer Science and Engineering**

University of Applied Sciences of Southern Switzerland (SUPSI)
Lugano (Switzerland) 09.2013 - 01.2017

BA thesis: Real-time streaming of video content over UDP/TCP using the gstreamer (C++) framework
Supervisor: Prof. Leidi Tiziano

Certifications

- **[AWS Certified Developer Associate](#)**
Amazon Web Services Certification Center, September 2022
Credential number: Y5SHLSTC5JV41DWD
- **[Tensorflow Developer Specialization](#)**
DeepLearning.ai / Coursera, April 2021
- **[Deep Learning Certification](#)**
DeepLearning.ai / Coursera, March 2021

Indicative tech experience

- java / kotlin 4 years
- python 5 years
- js/ts 4 years
- c++ 2 years
- django / flask 4 years
- spring 2 years
- docker 3 years
- aws 2 years
- pandas / numpy 1 year
- postgresql 4 years
- sql-server 1 year
- terraform 1 year

Contributions highlights

- [RenderThread vs UI Thread in Android: In-Depth explanation](#)
- [Create memory leaks in Java using a TreeMap](#)
- [IT Security: NTLM vs Kerberos tokens debugging](#)
- [Nano: jump to the end of file](#)
- [Support for Sequences in numpy test assertions](#)
- [Pandas bug: DateOffset and milliseconds](#)

