Software Engineer

Github: https://github.com/CaoKha
Portfolio: https://caokha.com/Portfolio

Technical Skills

Languages: Rust, Python, C++, C, JavaScript, TypeScript, HTML, CSS, SQL
Frameworks:
- **Rust:** Leptos, Axum, Tonic, Tauri
- **Python:** FastAPI, Django
- **Typescript:** Angular, React, Nuxt

Databases: PostgreSQL, MongoDB, MySQL, SQLite
Testing: Postman, Swagger, Playwright, Pytest, Tox
Cloud: AWS, Azure
Tools: Neovim, Visual Studio Code, Obsidian, Jira, Confluence
CI-CD: Docker, Gitlab-CI, Github Actions, Kubernetes, Azure Pipeline
Build tools: Cargo, Makefile, Bazel
Versioning: Git
System: Linux, Mac OS, Windows

Education

09 - 2017 - 02 - 2018

Master of Science: Computer Science And Programming
Loughborough University - Loughborough, England

09 - 2014 - 09 - 2019

Master of Engineering: Mechatronic Engineer
University of Technology of Compiegne – Compiegne, France

Work Experiences

09 - 2023 - present

Backend Software Engineer
Allianz Trade, Paris

Project 1: Migrating version control from Excel to Git
Project 2: Building data pipeline, monitoring tool for data scientists

Tasks
- Daily meeting participation
- Agile methodology
- Ticket management and bug tracking on Gitlab and Jira
- Documentation

Data analysis with Python
- Analyzing, extracting information from Excel, PDF documents using open source LLM from Hugging Face
- Optimize sentences-transformer model for data scientists
- Building data pipeline with PySpark and Apache Kafka
- Exposing data services through APIs using FastAPI

- Building monitoring tool, edge case analysis with Prometheus and Grafana
- Implementing rollback policy for any failure transactions

CI-CD development with Rust

- Analyzing PLM documents, convert excel tables into parquet files using Polars.rs
- Developing and optimizing existing data infrastructure profiler using Grafana Pyroscope
- Improve data scientist workflow by building CLI tools with Rust

Legacy development with Rust

- Developing linking algorithm in order to create a git history graph
- Automating the algorithm for many legacy projects
- Optimizing, refactoring the codes
- Making the code platform-independent

Backend development with Python

- Developing REST API with FastAPI
- Building and deploying CI-CD for on-premise infrastructure using Ansible and Gitlab
- Implementing event-driven architecture with Apache Kafka
- Optimizing, refactoring legacy code

Backend development with Rust

- Developing GRPC, Kafka consumer with Axum and Tonic
- Domain driven design with cargo workspace.

Development stack

- Programming Languages: Rust, Python, C, Batch Script, Shell Script, Makefile
- Frameworks & Libraries:
  - **Rust:** Polars, Git2, Axum, Tonic
  - **Python:** Pandas, FastAPI, Kafka, PySpark
  - **Javascript/Typescript:** Grafana
- CI-CD: Git, Docker, Docker Compose, Makefile, Cargo
- Tools: Neovim, Visual Studio Code, Gitlab, Github
- OS : Windows (WSL), Redhat
- Project Management: Jira
- Working Language: French, English

09 - 2021 - 09 - 2023

FullStack Developer Python/Angular/React

French Football Federation, Paris

Project 1: Overhaul of a web application for football clubs management
Project 2: Development of a web application for online membership payment
Project 3: Development and maintenance of user dashboard for many internal applications

Tasks

- Daily meeting participation
- Agile methodology
- Ticket management and bug tracking on Azure Devops and Jira
- Documentation with mdBook and Confluence

Front-end development with Angular

- Development of UIs in Angular, HTML5/CSS3, TypeScript
- Data prefetching with Resolver, protecting private pages with Guard
- Refactoring class objects into functions, adjusting data structure methodology from Inheritance to Composition
- Responsive integration with CSS3, SCSS, Angular Material, Bootstrap
- Consumption of Rest APIs with HttpClient, RxJS Observables
- State management with Observables, BehaviorSubject, Subject from RxJS
- Implementation of UX/UI animations

Front-end development with React

- Development of UIs in ReactJS, HTML5/CSS3, TypeScript
- Responsive integration with CSS3, SCSS, Mui, Tailwind CSS
- Consumption of Rest APIs with Axios

- State management with useContext
- Lazy-loading for heavy modules

Back-end development with Python/FastAPI

- API development with FastAPI
- API visualization with Swagger
- Database mapping with SQLAlchemy
- Query Optimization
- Optimization of server memory for file management

Test Implementation

- API functionality testing with Postman
- E2E Front-end with Playwright
- Back-end tests with Pytest

Continuous automation and deployment

- Version control with Git
- Pull Request on Azure Repos
- CI-CD onAzure DevOps
- Containerization with Docker

Development stack

- Programming Languages: Python, TypeScript, Javascript, HTML5, CSS3, SQL, Shell
- Frameworks & Libraries: Angular, Bootstrap, FastAPI, ExpressJS (NodeJS)
- Web service: REST
- CI-CD : Docker, Kubernetes, Git
- Tests : Postman, Playwright, Pytest
- Database : Postgres, MongoDB
- Tools: Neovim, Visual Studio Code, Azure Repos, Github, Postman
- OS : Linux, Mac OS
- Project Management: Jira
- Working Language: French

09 - 2020 - 06 - 2021

Data Engineer / Data scientist - Python

Fintricity, England

Project : Weed Classification

Tasks

- Estimation and breakdown of User Stories into sub-tasks
- implement Proof Of Concept (POC) of deep learning method in weed classification

Data Analysis and deep learning model development with Python

- Development of Proof of Concept (POC) with Jupyter Notebook and Fast.ai
- Data extraction and analysis with openCV
- Testing different deep learning models (MobileNetV3 vs ResNet50)
- Implementing model in AWS with Python SDK Boto3

CI/CD

- Version control with Git
- Integration with AWS Lambda
- Containerization with Docker
- Project management with Jira
- Documentation with Confluence

Development stack

- Programming Languages: Python
- Frameworks & Libraries: NumPy , Pandas, Fast.ai, TensorFlow, Keras, PyTorch
- Tools: Visual Studio Code, Git
- OS: Linux, Mac OS
- Project Management: Agile, Jira
- Working Language: English

Academic Experiences

10 - 2019

3rd Winner of Créathon UTC Event
Compiegne, France

Project: Algae-based CO2 Filter for Cars
The product aims to reduce CO2 emissions from vehicles while also generating biomass. Targets include old cars and individuals who cannot afford low-emission vehicles.

02 - 2019 - 08 - 2019

Robotic Engineer Intern
Trimble, Nantes, France

Project: Camera and Inertial Sensor Synchronization
Interpolating data received from the Realsense D345 camera and DMU11 using SLERP and publishing it on the Robotic Operating System (ROS). The program is written in C++.

10 - 2018

Special Prize Winner of UTC Hackathon
Compiegne, France

Project: LED Animated Clock
Using Arduino Uno to program LEDs and a drill to rotate them animating a clock.

02 - 2018 - 08 - 2018

Process Engineer Intern
Valeo, Reims, France

Project: Radiator Crimping Inspection with Four Cameras
Designed accessories for the inspection machine using Catia v5. Drafted the user guide and safety documentation for the machine.

10 - 2016

UTC Hackathon
Compiegne, France

Project: Smart Refrigerator
Creating an intelligent program that assists the bartender in organizing beer in the refrigerator.

01 - 2016 - 02 - 2016

Print Shop Operator
L'imprimerie de Compiègne, France

Job: Temporary Worker
First professional experience. Gained teamwork experience.