

Karel

Middle AI Software Engineer

SUMMARY

- Expertise in AI/ML engineering with hands-on experience in LLM agents, prompt engineering, and AI-assisted development workflows using Python, LangGraph, LangFlow, and AWS Lambda.
- Proven track record delivering AI-driven automation solutions for financial auditing, supply chain forecasting, and autonomous driving projects.
- Strong background in computer science with MSc degree, deep learning research, and advanced skills in Python, FastAPI, PyTest, Git, and cloud technologies.
- Skilled in building scalable, version-controlled pipelines integrating multi-source data, with emphasis on reliability, performance tuning, and test coverage.

TECHNICAL SKILLS

Main Technical Skills	Python (5 yr.), Machine Learning (5 yr.), Deep Learning (5 yr.), Prompt Engineering (2 yr.), LangGraph (1 yr.)
AI Tools & Assistants	Claude (1 yr.), Cursor (1 yr.), GitHub Copilot (2 yr.)
Programming Languages	C (2 yr.), C++ (2 yr.), Java (1 yr.), OpenMP, Python (5 yr.)
AI & Machine Learning	Claude (1 yr.), Deep Learning (5 yr.), Keras, LangGraph (1 yr.), LLaMA (1 yr.), Machine Learning (5 yr.), NumPy, Prompt Engineering (2 yr.), PyTorch (1 yr.), Tensorboard, TensorFlow
Python Libraries and Tools	Keras, NumPy, Pandas, pytest (1 yr.), PyTorch (1 yr.), TensorFlow
JavaScript Libraries and Tools	Nightwatch.js (1 yr.)
Data Analysis and Visualization Technologies	Jupyter Notebook, Pandas
Databases & Management Systems / ORM	Elasticsearch (1 yr.), Snowflake (1 yr.), SQL
Amazon Web Services	AWS Bedrock (1 yr.), AWS Lambda (1 yr.)
Google Cloud Platform	Google Workspace (1 yr.)
Platforms	1C (1 yr.)
Scripting and Command Line Interfaces	Bash (2 yr.)
Third Party Tools / IDEs / SDK / Services	Cursor (1 yr.), PyCharm (2 yr.), vim (1 yr.)

Virtualization, Containers and Orchestration	Docker (1 yr.), Kubernetes (1 yr.)
Version Control	Git (5 yr.), GitHub (3 yr.), GitLab (1 yr.)
SDK / API and Integrations	Google API (1 yr.)
Collaboration, Task & Issue Tracking	Jira (1 yr.)
Methodologies, Paradigms and Patterns	Kanban (1 yr.), Scrum (1 yr.)
QA, Test Automation, Security	pytest (1 yr.)
Other Technical Skills	LaTeX, Markdown (2 yr.), Spinnaker (1 yr.)

WORK EXPERIENCE

AI / Software Engineer - Private SME (Retail) s.r.o. (Private SME (Retail) s.r.o. AI and Web Development)

Duration: 10/2025 – present

Summary:

- Driving continuous upskilling with practical delivery focusing on LLM-powered automation, backend engineering, and developer workflows
- Prototyping AI-assisted content and operations tooling and developing a modern web presence for a boutique brand including a website MVP and evaluating e-commerce integration options

Responsibilities:

- Developing AI-assisted tools and backend systems using modern technologies.
- Prototyping and implementing LLM-powered automation solutions.
- Creating and maintaining a web presence for the company's boutique brand.
- Continuous professional development in AI and machine learning fields.

Technologies: Python · FastAPI · LLMs · LangChain/LangGraph · Git · GitHub · GitHub Copilot · Docker · PyTest · Markdown · AI-assisted development (PyCharm/Cursor)

AI / Software Engineer - Raiffeisenbank (client) (Change Impact Analysis MVP with AI Agents)

Duration: 5/2026 – 7/2026

Summary:

- Developed an AI agent-based MVP for change impact analysis, including a User Guide Agent (UGA) orchestrating deeper analysis agents
- The project aimed to provide a user-facing orchestration system for analyzing change impacts using AI agents



Responsibilities:

- Built Python and LangGraph-based AI agents for change impact analysis.
- Implemented new UGA endpoint with AWS Lambda integration.
- Designed and refined system prompts for orchestration and user guidance.
- Applied AI-assisted development workflow including code review and issue tracking.

Technologies: Python · LangGraph · LLM Agents · Prompt Engineering · AWS Lambda · AWS/ AWS CLI · GitHub Enterprise · GitHub Copilot CLI · Git · JIRA · AI-assisted development · Code Review

Senior AI Engineer - PricewaterhouseCoopers (client) (Audit-Ready Financial Statements Automation)

Duration: 8/2025 – 10/2025

Summary: Automated the generation of audit-ready financial statements by replacing manual Excel to Word workflows with a reliable, auditable GCaaS pipeline for the TLP team, improving runtime, reliability, and reducing manual toil.

Responsibilities:

- Mapped multi-sheet Excel datasets into predefined Word templates.
- Built version-controlled LangFlow flows synchronized with Python sources.
- Enforced Python 3.12 and pinned library versions for stability.
- Improved runtime and reliability through testing and monitoring.
- Designed prompt-and-tooling framework with evaluation loops and regression tests.
- Built document extraction pipeline with structured outputs and reliability constraints.

Technologies: Python 3.12 · LangFlow · GitHub Copilot (GPT 4.1) · Git · GitHub (code reviews, tags, releases) · PyTests · Markdown · SCRUM (Kanban) · vibe-code-centric development (PyCharm)

Machine Learning Engineer - Rohlík Group (client) (Supply Chain & Demand Forecasting Service)

Duration: 5/2025 – 7/2025

Summary: Developed a new FastAPI service with custom endpoints for monitoring, evaluation hooks, and automated test coverage to support reproducible results in supply chain and demand forecasting.

Responsibilities:

- Developed FastAPI service with custom endpoints for monitoring and evaluation.
- Implemented automated test coverage for reproducibility.
- Optimized performance and resolved issues using Cursor AI and other tools.
- Obtained Snowflake SQL and Keboola Data Academy certifications during the engagement.

Technologies: Python · Cursor.ai · FastAPI · pytest · Git/Gitlab · Claude Code · Code Review · Google Gemini · Anthropic Claude · Bash · Polars · Google Workspace

Member of Technical Staff - Pure Storage (client) (Digital Experience Prompt Engineering)

Duration: 10/2024 – 1/2025



Summary: Worked on prompt engineering and prompt meta-engineering to enhance digital experience projects, utilizing advanced AI models and tools until project closure due to internal restructuring.

Responsibilities:

- Performed prompt engineering and meta-engineering for AI models.
- Utilized ChatGPT Enterprise and GPT models for project tasks.
- Collaborated using GitHub, Kubernetes, and other DevOps tools.

Technologies: ChatGPT Enterprise · GPT 4o & o1 · Github Copilot · Python · FastAPI · PyTest · Pydantic · Github · Kubernetes · Watchdog · Elastic · Spinnaker · Google Suite

AI Specialist & Prompt Engineer - Aimtec, Division of Integration (Information Extraction from Unstructured Documents)

Duration: 2/2024 – 8/2024

Summary: Designed and implemented an LLM-powered document extraction pipeline with structured outputs and reliability constraints using AWS Bedrock, focusing on prompt engineering and AI-assisted development.

Responsibilities:

- Designed prompt-and-tooling framework with evaluation loops for document processing.
- Built document extraction pipeline using AWS Bedrock.
- Applied AI-assisted development techniques with Copilot and GPT models.

Technologies: prompt engineering · prompt meta-engineering · Claude {3, 3.5} Sonnet · AWS Bedrock · Python · bash · vim(diff) · Onenote

AI Development Engineer – Autonomous Driving projects - Porsche Engineering (ADAS Team Autonomous Driving Projects)

Duration: 6/2023 – 10/2023

Summary: Worked on machine learning and computer vision projects related to autonomous driving, focusing on data science and data imputation techniques.

Responsibilities:

- Developed machine learning models for autonomous driving applications.
- Applied computer vision techniques and data imputation.

Technologies: ML · computer vision · Python · Transformers · data science · data imputation

AI Researcher at Computer Vision Research Group - Technical University of Munich, Chair of Remote Sensing (Deep-learning Hybrid Uncertainty-aware Modelling with Earth Observation Data)

Duration: 3/2022 – 4/2023

Summary: Conducted research on deep learning models for semantic segmentation of Earth observation data using Monte Carlo Dropout on UNet architecture, contributing to uncertainty-aware modelling.



Responsibilities:

- Developed and evaluated deep learning models for semantic segmentation.
- Applied Monte Carlo Dropout techniques for uncertainty estimation.
- Managed experiments using PyTorch, Weights & Biases, and GPU computing.

Technologies: PyTorch · Weights & Biases · GPU Computing · GitLab

AI Specialist - Volkswagen Group (Digiteq) (Video Perception for Autonomous Driving / Advanced Driver-Assistance Systems)

Duration: 12/2021 – 2/2022

Summary: Worked on video perception and core network architectures optimization for autonomous driving and advanced driver-assistance systems, including network quantization and TensorRT optimization.

Responsibilities:

- Developed and optimized core network architectures for video perception.
- Implemented network quantization and TensorRT optimizations.

Technologies: TensorRT · network quantization

Research Scientist (part-time internship) - IBM, Watson Research (Natural Language Processing and Mobile Computing Research)

Duration: 5/2013–5/2014 & 10/2014–3/2015

Summary: Conducted research projects focused on improving speech recognition accuracy and processing crowd-annotated datasets for ellipsis resolution in natural language processing.

Responsibilities:

- Improved accuracy of speech recognition for name utterances.
- Processed and verified crowd-annotated datasets for ellipsis resolution.

Technical Studentship Programme - CERN, Intel & LHCb Online Computing (Realtime Applications for LHCb Detector Online DAQ System)

Duration: 4/2015–3/2016

Summary: Developed realtime applications for the LHCb detector's online data acquisition system, improving event sorting and implementing buffered read techniques.

Responsibilities:

- Improved event sorting using OpenMP parallelization and loop tiling in C++.
- Implemented buffered read for LHCb DAQ system in C.

Technologies: C++ · C · OpenMP

Summer Studentship Programme - CERN, Data Storage Group (Tape Storage and Data Protection Project)

Duration: 6/2014–9/2014



Summary: Worked on tape storage and data protection by increasing speed of CRC-enabled tape write through multithreaded CRC error correction implementation.

Responsibilities:

- Implemented multithreaded CRC error correction using C pthreads.

Technologies: C · pthreads

Open Source Software Engineer - H2O.ai (PCA Functionality Enhancement)

Duration: 4/2017–9/2017

Summary: Enhanced the speed of PCA functionality by integrating and benchmarking alternative Java implementations of SVD decomposition, including unit and performance tests.

Responsibilities:

- Integrated and benchmarked Java SVD implementations for PCA speed improvement.
- Developed unit and performance tests.

Technologies: Java

AI Researcher - Artificial Intelligence Center, Czech Technical University (Complex Imperfect-Information Game Strategies using Deep Learning)

Duration: 10/2017–1/2019

Summary: Researched imperfect-information game theory and deep learning, implementing tree search enhanced with neural networks using TensorFlow, resulting in a journal publication.

Responsibilities:

- Developed deep learning models for imperfect-information games.
- Implemented tree search enhanced with neural networks.
- Published research in AI journals.

Technologies: TensorFlow

Researcher - Imperial College London, Faculty of Natural Sciences (Deep Learning for Evolutionary Inferences from Large Genomic Data)

Duration: 4/2019 – 10/2020

Summary: Applied machine learning techniques to population genomics data of malaria mosquitoes for biological and evolutionary inferences such as migrations and selection strength.

Responsibilities:

- Analyzed large genomic datasets using machine learning.
- Derived biological and evolutionary insights from data.

Technologies: Pandas · NumPy



EDUCATION

- **MSc in Computer Science (Discrete Models and Algorithms), Charles University Prague**
Supervisor: Professor M. Hladík. GPA: 1.00 (summa cum laude).
9/2013–9/2016
- **BSc in Computer Science (General Computer Science), Charles University Prague**
Supervisor: Professor A. Pultr. GPA: 1.05 (summa cum laude).
9/2010–6/2013

CERTIFICATION

- **Snowflake SQL certificate**
Certification in Snowflake SQL.
- **Keboola Data Academy certification**
Certification from Keboola Data Academy.
- **Deep Learning specialization (deeplearning.ai on Coursera)**
5-course specialization awarded with a certificate.
2019
- **Google Kick Start programming contest**
2021: 202nd position out of 5600+ competitors (96th percentile).
- **BMI certified IQ test**
IQ score 132 – exceptional at Analytical Thinking, Pattern Recognition, Visual Perception and Spatial Orientation.
2020
- **CERN Summer School of Computing**
Passed the final exam with special distinction: 35/36 points (silver medal position).
9/2015

