

Falk Pollok

Senior Software Engineer

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PROFILE SUMMARY

Falk Pollok is a Senior Software Engineer in IBM Research Europe and a Senior Research Software Engineer for the MIT-IBM Watson AI Lab currently specializing in Foundation Models and Retrieval Augmented Generation. Falk was a member of the MIT-Harvard-Stanford team on DARPA's Machine Common Sense project, contributed to IBM watsonx, Watson Core, Watson Orchestrate & Watson Machine Learning, was the lead developer for IBM Sapphire and founded IBM's Engineering Excellence program. He holds a master's degree in CS from RWTH Aachen, leadership certificates from Cornell and IBM's highest developer profession rank. Moreover, he published 8 papers in top conferences like NeurIPS, AAAI & Middleware and 2 patents, was named a Face of IBM Research and received multiple awards incl. IBM's Outstanding Technical Achievement and InfoWorld's BOSSIE award.

SKILLS

PROFESSIONAL SKILLS

Generative AI / Foundation Models | Enterprise AI | AI Orchestration | Machine Learning
ML Systems | Hybrid & Multi Cloud | NLP | Computer Vision | Embodied AI | AI Architecture

TECHNICAL SKILLS

Python | Java | Julia | Kubernetes | Linux

OBJECTIVES

- Leverage Generative AI in Enterprise settings, e.g., Retrieval Augmented Generation to access knowledge in documents.
- Architecture of Complex AI Systems, e.g., for AI Orchestration and Software Agents as Digital Workers
- AI Systems in Hybrid and Multi Cloud Settings

WORK EXPERIENCE

Senior Software Engineer

IBM Research Europe | Zurich, Switzerland | 2023

- Integrated multi-task prompt and prefix tuning with caikit framework (OSS version of Watson Core) and thus watsonx
- Developed Retrieval Augmented Generation solution including Q&A against Enterprise documents, tables and APIs
- Number 1 contributor on IBM Stack Overflow by both reputation and number of badges (out of 1210 IBMers)

Senior Research Software Engineer

MIT-IBM Watson AI Lab | Cambridge, MA | 2021 - 2023

- IBM Engineer on MIT-Harvard-Stanford Team for DARPA Machine Common Sense project mimicking the cognitive abilities of young children. Won against Berkeley and OSU twice by total score. MIT Research Affiliate in 2021/2022.
- Received both IBM Outstanding Technical Achievement and Research Accomplishment for it. Top tier publication on pose estimation. Was recommended for Chief Intelligence Architect position on MIT's Quest for Intelligence by Josh Tenenbaum and passed all interviews but could not join due to visa restrictions.
- Neuro-Symbolic Visual Question Answering demo on TIAGo++ robot via transformer and fine-tuned detectron.
- Side activities: Integrated Graph-NN-based time series analysis for finance, enabled plant optimization for multi-cloud.

Software Engineer, Core AI

IBM Research AI | Cambridge and T.J. Watson Research Center | 2018 - 2020

- Worked on Deep Learning as a Service component of Watson Machine Learning. Replaced storage solution with openly available drivers for open sourcing, but also worked on Kubernetes and Go level. Received InfoWorld's BOSSIE award.
- Early POC and design proposal on Ray integration and reinforcement learning support.
- First engineer on Watson Orchestrate – low-code no-code digital worker platform via multi-agent system. I built the first core services like working memory, the typing of AI skill signatures for automatic orchestration in digital workers, various integrations for DeepSearch, Ontobot and other IBM products and various initial skills (multi-channel communication, loan decision from document, slot filling for conversational AI). I was also heavily involved in architectural decisions.
- 2 patents, multiple top-tier publication in both conferences on systems like Middleware and on AI like NeurIPS, AAAI.

Falk Pollok

Lead Developer for IBM Sapphire

University of Michigan | 2016 - 2018

- \$6.5M Dialog Systems Research Project. Worked with chairs on deep learning, reinforcement learning, natural language processing, data annotation and signal processing to support their research and integrate their components into one consolidated, microservice-oriented architecture. Enabled over 20 top conference papers with over 700 citations.

ACHIEVEMENTS & AWARDS

Nominated: IBM Technical Collaboration Achievement Program (TCAP) Award for Work on watsonx 2023
Senior Software Engineer | IBM Research Europe

Outstanding Technical Achievement: Neuro-symbolic Models and World Simulators for Machine Common Sense 2022
Senior Research Software Engineer | MIT-IBM Watson AI Lab

IBM Research Accomplishment: Neuro-symbolic Models and World Simulators for Machine Common Sense 2021
Senior Research Software Engineer | MIT-IBM Watson AI Lab

Face of IBM Research (for founding and leading Engineering Excellence platform) 2021
Senior Research Software Engineer | MIT-IBM Watson AI Lab

Best of Open Source for Machine Learning (BOSSIE) Award 2018
Software Engineer, Core AI | IBM Research AI, Cambridge

PROJECTS

watsonx, Watson Core, caikit 2022-2023
Generative AI Platform | Senior Software Engineer | <https://www.ibm.com/watsonx>

DARPA Machine Common Sense 2021-2022
Large Research Project on MCS | Senior Research Software Engineer | <https://www.darpa.mil/program/machine-common-sense>

Watson Orchestrate 2020
AI Orchestration & Digital Worker Platform | Software Engineer, Core AI | <https://www.ibm.com/products/watson-orchestrate>

Deep Learning as a Service and Fabric for Deep Learning (in Watson Machine Learning) 2018-2019
Deep Learning Platform | Software Engineer, Core AI | <https://cloud.ibm.com/catalog/services/watson-machine-learning>

EDUCATION

Master of Science, Computer Science | RWTH Aachen May 2016
Grade 1.5 (excellent), GPA 3.85, Thesis: : Leveraging UIMA-Based Question and Answering Systems for eLearning and Research

Bachelor of Science | RWTH Aachen
Thesis: Real-Time Tracking on Mobile Devices for Augmented Reality

PROFESSIONAL DEVELOPMENT

Executive Leadership, Change Management, Performance Leadership, Project Management 360 2022-2023
Cornell University

Advanced Data Science Specialization 2022
Coursera, IBM

66 Credly Microcredentials incl. IBM Recognized Speaker, IP Creator, Educator, Profession Champion, Blue Core Mentor, Machine Learning Specialist, IBM Certified Application Developer Watson V3, Be! Leadership, etc. 2018-2023
IBM

Please also visit my webpage aiengineer.com and feel free to reach out with any questions.