

Contact

+16822562104 (Mobile)
thekizoch@gmail.com

www.linkedin.com/in/michael-c-koch (LinkedIn)

Top Skills

Neo4j
Entity Extraction
LLM

Languages

Russian (Limited Working)
English (Native or Bilingual)
Dutch (Professional Working)
German (Native or Bilingual)
Spanish (Native or Bilingual)

Certifications

End-to-End Machine Learning with TensorFlow on GCP
Image Understanding with TensorFlow on GCP
How Google does Machine Learning
Sequence Models for Time Series and Natural Language Processing
Digital Twins

Michael Koch

Staff AI Engineer | GCP Certified ML Engineer | Vertex AI & Azure AI Platform | AWS
Honolulu, Hawaii, United States

Summary

Hi, I'm an entrepreneur. I'm specialized in building chatbots, entity extraction frameworks, LLMs, and RAG pipelines and applications.

I'm interested in the question "why does this work?" This is my ultimate attraction to science and engineering.

It changed when I took a part time research position in Switzerland. In this laboratory, the question turned to "will this work?"

Curiosity fed itself. I interned in a Swiss venture capital firm, where the question became "will this business work?"

Those three questions have guided me ever since. With an entrepreneurial spirit, I have gone far to answer these questions in my own healthcare e-commerce start-up founded in 2017. My greatest lessons there have been lean principles and automation.

Designing and implementing programs/processes is what I do. Documenting the process and recording the data for analysis is how I learn how to improve/control it.

I'm a self-starter and procedure is very important to me. Hungry to learn more, I take on tasks that broaden my toolbox.

Through it all, I've become very sensitive to risk. Identifying hazards and preventing them is my nature.

I am a native English speaker, great at Spanish and Swiss German and getting better at a few others (try me!). Recently I've been building a SaaS RAG application where you can ask questions on public financial data on hospitals. I am quick to master new topics and likely to surprise you with original thinking. Connect and get in touch if you'd like to know more.

Certifications:

Google Professional Machine Learning Engineer

Google Cloud Digital Leader

Experience

Unify Consulting

Staff AI Learning Engineer

March 2023 - Present (2 years)

Austin, Texas, United States

- ▶ Developed advanced Large Language Model (LLM) agent frameworks leveraging RAG (Retrieval Augmented Generation) with tools like CrewAI, Haystack, ChromaDB, and Chainlit, delivering dynamic chatbot interfaces.
- ▶ Designed and implemented custom LLM-powered entity extraction frameworks to extract complex entities from medical PDFs, leveraging LlamaIndex for integration into databases and graph structures.
- ▶ Built and deployed end-to-end ML pipelines using Kubeflow on Google Vertex AI, automating ingestion, transformation, and model serving for scalable prediction workflows.
- ▶ Created scalable GenAI solutions, including tools for SQL translation between platforms (e.g., Snowflake SQL to Databricks SQL), utilizing RAG techniques for accurate query transformation.
- ▶ Designed and maintained RESTful APIs to integrate ML and LLM solutions with existing systems, ensuring seamless interaction with business applications.
- ▶ Collaborated with cross-functional teams to build intuitive user interfaces for ML-powered applications, utilizing React and backend frameworks like Node.js and Python.

Olea Edge Analytics

Senior Machine Learning Engineer

November 2021 - March 2023 (1 year 5 months)

Austin, Texas, United States

- ▶ Calculated needed metrics for water flow meters using clustering algorithms and statistical mining on time series data collected by sensors on the edge.
- ▶ Tested custom models to classify error conditions of water flow meters. Modeled on structured data using SQL, BigQuery ML, Scikit-learn, sktime, Keras + Tensorflow, and XGBoost.

- Developed data pipelines in Google Cloud (GCP) with feature engineering using principles of physics. Managed ML Operations on Composer, Airflow, Kubeflow, and Cloud Functions to train, deploy, and monitor models.

Self-employed

Machine Learning Engineer

February 2020 - January 2022 (2 years)

Grapevine, Texas, United States

- Built data pipelines with Tensorflow Extended (TFX), Dataflow, and Pub/Sub. Used Kubeflow Pipelines (KFP) for pipeline/production orchestration, Vertex AI for serving predictions.
- Tuned custom Tensorflow models with KerasTuner API. Trained on un-/structured data using SQL in BigQuery ML, Python in scikit-learn, and the GUI for AutoML.
- Deployed Deep Learning models with ensemble modeling in Tensorflow on Google Cloud (GCP).

Ivan's Herbs

4 years 3 months

Production Manager

February 2021 - November 2021 (10 months)

Grapevine, Texas, United States

- Built data pipelines to forecast demand using ML in Python on Google Cloud Platform.
- Managed internal recommendation system for ML for email campaigns.
- Designed new products with 30% less COGS and same product value to customer.

CTO and Founder

September 2017 - February 2021 (3 years 6 months)

Amsterdam Area, Netherlands

- Leveraged ML models to find products for our e-commerce customers using data mining.
- Managed logistics for our CPG products using API's and demand forecasting.
- Built e-commerce website using GitHub with SEO, Google analytics, and Google Tag Manager. Executed social media, SEM, and Google Ad campaigns for weekly analysis and conversion optimisation.

Younergy

Director of Operations and Sales, German-speaking region

August 2015 - September 2017 (2 years 2 months)

Zürich Area, Switzerland

Introduced zero upfront cost solar systems for Swiss private home-owners.

- ▶ Managed permitting, engineering, and installation process of 10+ photovoltaic projects simultaneously. Ensured installations were to ISO 9001 and ISO 14000 standards.
- ▶ Executed purchasing of supplies and logistics for installations.
- ▶ Trained a sales team for technical visits. Managed team of system designers for compliance to permitting laws and good engineering practices.

Verve Ventures

Intern as Investment Manager at Verve Ventures

January 2015 - July 2015 (7 months)

Zurich, Switzerland

- ▶ Specialised in start-ups in the engineering science/chemical processes domain.
- ▶ Managed and evaluated Swiss start-up companies as potential investment opportunities for investors on our platform.
- ▶ Learned skills to evaluate the business case, market trends, competitors, and IP for new technical solutions from start-ups.

ETH Zurich

Research Assistant - Materials Laboratory

August 2014 - January 2015 (6 months)

Zürich Area, Switzerland

- ▶ Applied knowledge of analytical chemistry techniques. Designed with SolidWorks, 3D-printed, and injection moulded a collapsible silicone valve. Used design of experiments (DOE) to find correct process parameters.
- ▶ Investigated lighter and more flexible solutions for ballistic body armour. Investigated methods of encapsulating DNA with silicon oxides and other oxides for protection from UV.
- ▶ Practiced good laboratory practice (GLP) using Personal protective equipment (PPE) with cleanroom experience.

Gas Cleaning Technologies LLC

Process Engineer - Metal Refining

April 2012 - August 2012 (5 months)

Irving, Texas, United States

- Created Functional Control Descriptions and SOPs for process control in the metals refining industry. Used Process Failure Mode Effects Analysis (PFMEA). Drew with AutoCAD for PFDs, P&IDs, and mechanical drawings.
- Conducted procurement of equipment for gas off-take systems for metals industry. Calculated engineering metrics for equipment to maintain and upgrade the existing plants.
- Used CFD to model gas capture and test hood designs from SolidWorks files, ensuring it was to ISO 14000 standards. Improved process safety management performance with a 99.7% capture rate for EPA regulations.

University of Texas at Austin

Numerical Methods MATLAB Grader

August 2009 - December 2010 (1 year 5 months)

Austin, Texas

- Exercised MATLAB coding techniques
- Graded programming assignments for the Numerical Methods class.
- Applied statistical analysis and numerical methods techniques for solving problems.

Education

Eidgenössische Technische Hochschule Zürich

Master's Degree, Chemical and Bioengineering · (2012 - 2015)

The University of Texas at Austin

Bachelor of Science, Chemical Engineering · (2007 - 2010)

The University of Texas at Austin - Red McCombs School of Business

Business Foundations Certificate, Business Administration, Management and Operations · (2007 - 2010)