

Igor Rendulic

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Machine Learning Engineer — Software Engineer (Python, Go, TypeScript)

Experienced in designing, training, and deploying **ML and LLM-based models** in production environments. Strong background in backend architecture (Go, Python, FastAPI, gRPC), **MLOps and model serving** (Docker, Kubernetes, CI/CD), and applied AI (NLP, embeddings, fraud detection). Passionate about **privacy-preserving AI, multi-modal systems**, and distributed architectures.

Skills

Languages: Python, Go, TypeScript, JavaScript, SQL, Bash

Machine Learning / AI: PyTorch, scikit-learn, XGBoost, Transformers (HuggingFace), LoRA / PEFT, NumPy, Pandas

MLOps / Data Infrastructure: MLflow, BigQuery, Pinecone, Vertex AI, Dataflow, NoSQL databases

Backend / Frameworks: FastAPI, Flask, gRPC, Node.js, Express, REST

Frontend / UI: React, Next.js, Material-UI, TailwindCSS

Cloud / DevOps: GCP, AWS, DigitalOcean, Docker, Kubernetes, Terraform, GitHub Actions, CI/CD, Prometheus

Security / Cryptography: JOSE (JWS/JWE/JWK), NaCl, DIDComm v2, PKI, Secure Email Systems

Other Tools: Git, Linux, VS Code, Jupyter, Postman, Coding AI assistants

Professional Experience

Founder / Principal Engineer

Mailio

Feb 2025 – Present

mail.io

- Founded and built **Mailio**, a privacy-first email platform integrating **end-to-end encryption** with **client-side embedding generation with cloud-based semantic search** and **AI-driven fraud detection**.
- Designed and deployed **Transformer-based models** (E5, MiniLM) for email intent classification, similarity search, and contextual ranking; combined embedding features with tabular metadata in an **XGBoost ensemble** to detect spam, phishing, impersonation, and spear-phishing attacks.
- Implemented **continuous retraining and drift monitoring** (PSI, ROC-AUC tracking)
- Architected a distributed backend in **Go, Python, and TypeScript** with **Kubernetes, CouchDB**, and **Pinecone**, supporting real-time synchronization and per-user encrypted data stores.

Principal Engineer — AI & Machine Learning Systems

Azumio, CocoonCam, Chrysalis Cloud, HaloVision

San Francisco

Jan 2014 – Jul 2025

- Led development of **HaloVision**, an **AI-driven confidential conversation analytics** platform designed to surface hidden blockers within organizations. Implemented **LLM-powered call summarization and information-extraction pipelines**, combining prompt-based reasoning with **traditional ML techniques** (topic modeling, clustering, paraphrase-similarity scoring) to ensure accuracy and enable human-in-the-loop review. Delivered the full system—from prototype to onboarding

first enterprise clients—in under three months. *Tech: Python, Transformers, RetellAI, Pipecat, AssemblyAI, LLM-based conversational AI, LangFuse, conversation evaluation for hallucination mitigation, information extraction from transcripts, and pipelines for aggregating and analyzing conversations.*

- Developed **Chrysalis Cloud**, a distributed **video-streaming and ML inference framework** derived from CocoonCam's production infrastructure. Enabled developers and enterprises to stream video to the cloud for **real-time AI analysis** using modular inference pipelines (object detection, motion tracking, pose estimation,...). Achieved **60× cost efficiency** compared to AWS Kinesis. (GitHub) (Demo Video)
- Served as lead backend engineer for **CocoonCam**, an **AI-powered baby monitor** platform using computer vision for real-time motion and breathing detection. Designed and scaled the **video ingestion and ML inference backend**, processing over **15 PB of video data monthly** and supporting tens of thousands of live streams. The platform's success led to its **acquisition by Alarm.com**, generating millions in annual revenue and high user retention. (CNBC Review) *Tech: Go, Python, Kubernetes, Docker, IaaS, video streaming*
- Built and deployed **Calorie Mama**, a deep-learning food-image recognition and nutrition-analytics platform with over **100k+ food/barcode classes** and multi-language support. Achieved **88% top-5 accuracy** and integrated the technology into **Samsung Bixby (Galaxy S9+)**; also licensed the **Food Recognition AI API** to third-party partners, including **Helix** for DNA-based meal and workout personalization. (Research Paper) *Tech: Python, Transformers, large-scale data pipelines (Google DataFlow) processing tens of millions of images, Cloud Run, Image Classification, Kubernetes.*

R&D Engineer (formerly Junior Software Engineer)

SRC Infonet (formerly InfoNET; acquired by SRC)

Ljubljana, Slovenia

2008 – 2012

- Proposed and prototyped a **proxy-based HL7 document exchange platform** (*medGateway*); the solution was productized and deployed within Slovenia's national e-health ecosystem (integrations with ePrescriptions and CRPP) leading to my transition into a dedicated **R&D** role.

Education

Master's in Computer Science

2005

University of Maribor, Slovenia

Specialization: Information Extraction and Envelope Induction

Selected Publications & Projects

- **Mailio:** Privacy-first, end-to-end encrypted email platform integrating **LLM-powered semantic search** and **AI-based fraud detection**. Built distributed backend (Go, Python, TypeScript) with Kubernetes, CouchDB, and Pinecone for scalable, privacy-preserving communication. (Website) (GitHub)
- **Chrysalis Cloud:** Distributed ML video inference platform handling **15 PB+ monthly** with **60× cost efficiency** over AWS Kinesis. (GitHub) (Demo Video)
- **Calorie Mama:** Deep-learning food image recognition and nutrition analytics system (**88% top-5 accuracy**); integrated into Samsung Bixby and Helix DNA personalization platform. (Research Paper)