Steven Hicks, Ph.D.

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Bio

Hi, my name is Steven. I'm a Norwegian-American developer and researcher with a Ph.D. in computer science, focusing on applied AI in the healthcare domain. I work on developing AI solutions for areas like colonoscopy and cardiology, and explore how AI can be used responsibly and effectively. I'm also the technical lead at a startup that builds a training platform for child interview professionals, using large language models (LLMs). I enjoy creating solutions that make a real impact, and my background as both a researcher and developer positions me well to do that.

Skills

Programming Languages	Python, Java, C/C++, C#, SQL, JavaScript/TypeScript, Go, Rust, Julia, and Bash.
Machine Learning & AI	Proficient with PyTorch, TensorFlow, Hugging Face Transformers, MLflow, Optuna, and scikit-learn. Experience in self-supervised learning and generative models (GANs, VAEs), and LLMs (GPT, LLaMA, Gemma).
Data & Analysis	Proficient with Pandas, NumPy, Matplotlib, Seaborn, R, and MATLAB. Experienced in statistical modeling, feature engineering, and data visualization for high-frequency and time-series data.
Back-End Development	Experienced with FastAPI, Django, Flask, Node.js, and Express. Built scalable APIs, background workers (Celery, Redis), real-time services (WebSockets), and secure endpoints (OAuth2, JWT)t.
Front-End Development	Developed production-grade UIs with React, Next.js, Remix, Tailwind CSS, and Radix UI, integrating with REST and GraphQL APIs.
Databases	Designed schemas, optimized queries, and implemented migrations using PostgreSQL, MySQL, and SQLite. Experience with NoSQL databases such as MongoDB, Redis, and Elasticsearch.

Work Experience

Senior Research Scientist, SimulaMet *Oct 2021 – Present*

- Collaborated with clinicians to design and validate ML models meeting clinical accuracy requirements, including custom evaluation metrics aligned with diagnostic guidelines.
- Worked with leading gastroenterologists to create a data collection framework for video capture and processing, deployed in multiple US hospitals for standardized endoscopy video acquisition.
- Built distributed training pipelines in PyTorch, incorporating mixed-precision training and model parallelism; containerized in Docker with reproducible environments using uv.
- Designed and trained RNNs for predicting delays in telecommunication networks; implemented time-series feature extraction .
- Developed CNN-based detection models for feeding fish using YOLOv5 and analyzed movement patterns using optical flow.
- Built algorithms for sperm quality assessment by applying optical flow (Farnebäck) for motility tracking and morphological analysis via OpenCV; integrated data pipelines using pandas and scikit-learn for multi-modal fertility diagnostics.
- Contributed to the national Smittestopp COVID-19 system by developing an analysis framework for infection detection, integrating GPS/Bluetooth mobility patterns, and applying Bayesian network models.
- Designed algorithms for ECG analysis using custom CNNs for multi-lead waveform modeling; implemented wavelet-based QRS detection and extracted cardiac wave intervals for diagnostic model development.
- Built a web platform (FastAPI, PostgreSQL, Remix) for running user studies on LLM interaction experience.
- Secured medium-scale national and EU research funding through proposals, contributing model development plans.

Chief Technology Officer, Innsikt.AI *June 2023 – Present*

- Led a small engineering team to build a multilingual, real-time avatar training platform for child interview professionals in police and welfare sectors, supporting Norwegian, English, Swedish, and Ukrainian.
- Architected cloud-native infrastructure (AWS EC2, RDS, S3, Terraform) with autoscaling groups and multi-AZ PostgreSQL for high availability.
- Integrated TTS (IMS-Toucan, Elevenlabs), rhubarb-lip-sync for viseme generation, and emotion modeling with facial blendshape mapping; optimized audio streaming with WebRTC.
- Implemented LLM interaction systems using LangChain with GPT-based models and fine-tuned LLaMA models; developed custom emotion-state modules in Python that adjust prosody and facial expressions.
- Developed frontend in Remix; built FastAPI backend with async endpoints and SQLAlchemy ORM for PostgreSQL.
- Coordinated pilot deployments with police training academies and child protection units, integrating domain expert feedback.
- Helped secure several million NOK in VC and innovation funding through technical proposal writing.

Adjunct Associate Professor, OsloMet *Nov 2023 – Nov 2024*

- Developed algorithms to detect frequent healthcare users from longitudinal patient data, delivering a full analysis pipeline from cohort definition and data linkage to modeling and validation.
- Used traditional ML and neural networks: logistic regression with elastic net, random forests, gradient-boosted trees, and MLPs; handled class imbalance with focal loss.
- Built reproducible preprocessing and modeling with scikit-learn pipelines: imputation, categorical encoding, leakage checks, nested cross-validation, and external validation; calibrated probabilities and evaluated using standard metrics.

Work Experience (continued)

Senior Data Scientist, ForzaSys *Aug 2022 – Nov 2023*
- Created a platform for detecting soccer match-fixing patterns using unsupervised anomaly detection on betting odds; engineered time-series features with sliding windows and integrated multiple betting APIs.
- Implemented automated highlight generation pipelines using key-frame detection, temporal segmentation of events, and ffmpeg for clip extraction and encoding.

Front-End Developer, DHIS2 *Jan 2017 – Sept 2018*
- Improved rendering performance in data-heavy dashboard components by implementing visualized tables and memoization.
- Migrated core applications from legacy vanilla JavaScript to React and Redux, increasing maintainability.
- Developed the initial version of the DHIS2 Data Store app, enabling administrators to manage key-value data within the DHIS2 ecosystem and supporting custom app integrations.

Full-Stack Developer, Axios AS *June 2014 – Aug 2016*
- Built enterprise mortgage management software in .NET and Azure, implementing role-based access control, audit logging, and automated financial reporting features.
- Designed and maintained SQL Server databases with normalized schemas and indexes to handle large volumes of data.
- Collaborated directly with clients to gather requirements, demo features, and deliver iterative improvements.

Activities

Member of the Educational Council, NORA ***2023 – present***
- Contributed to shaping national AI education strategies, advising on curriculum development, cross-institutional course offerings, and integration of industry collaboration into academic programs.
- Participated in policy discussions on AI skills development for students, researchers, and professionals, ensuring alignment with European AI Act and ethical AI principles.

Challenge Organizer, Various International Workshops ***2018 – present***
- Organized and led multiple challenges at major workshops, including ACM Multimedia and CLEF, defining problem statements, curating datasets, writing evaluation scripts, and coordinating participant support.
- Managed end-to-end challenge logistics: baseline model release, leaderboards, and preparing the workshop proceedings.

Main Organizing Committee Member, MediaEval ***2018 – present***
- Part of the central organization of MediaEval, an annual international workshop gathering hundreds of participants from academia and industry.
- Oversaw program planning, paper review management, and digital platform setup for hybrid participation.

Conference Organizer, Norwegian Artificial Intelligence Society (NAIS) ***2022***
- Designed the conference website with registration and agenda management features; integrated live updates for participants.
- Coordinated participant outreach via mailing lists and social media campaigns, and managed keynote speaker invitations, travel arrangements, and session scheduling.

Editor, SIGMM Records ***2019 – 2023***
- Served as editor for the interview section, selecting interviewees from leading multimedia research labs, preparing question sets, and editing articles for publication.
- Maintained consistent editorial style and ensured timely publication of quarterly issues.

Journal Club Coordinator, OsloMet AI Club ***2019 – 2020***
- Initiated and coordinated a bi-weekly journal club for the AI Lab at OsloMet, selecting recent papers across computer vision, NLP, and reinforcement learning.

Education

Ph.D. Computer Science, Oslo Metropolitan University, Norway ***Aug 2018 – June 2022***
- Researched and developed methodologies to enhance transparency, interpretability, and evaluation of AI systems in healthcare applications, with an emphasis on clinical adoption readiness.
- Dissertation work combined model design, explainability frameworks, and real-world validation on medical datasets.
- Supervised by Michael Riegler and På Halvorsen.

M.Sc. Computer Science, University of Oslo, Norway ***Aug 2016 – June 2018***
- Designed and implemented an automated report generation system for endoscopy procedures, integrating explainable AI techniques to improve clinician trust and decision support.

B.Sc. Computer Science, University of Agder, Norway ***Aug 2012 – June 2015***
- Developed and deployed a cross-platform mobile application for the Norwegian Seamen's Church using the Ionic Framework, supporting community engagement across multiple countries.

Miscellaneous

Supervision and Scholarly Impact

Supervised 3 bachelor project groups, 36 master's students in applied artificial intelligence, and 2 doctoral candidates, guiding research from proposal to publication. Current Google Scholar metrics: 4,123 citations, h-index 30, and i10-index 56.

Interests

Running a homelab for application development, internal tooling, and infrastructure experiments, including VPN gateways (WireGuard), database proxies (PgBouncer), and CI/CD pipelines. Provides secure access to analytics and ML services, with ongoing experiments in running and tuning LLMs for fine-tuning, evaluation, and private inference.