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 Pål 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.