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Professional Profile

Software Engineer with a BSc in Software Engineering from the University of Southern Denmark and starting an MSc in Software Engineering. Through university and industry-collaborative projects, I have gained experience in backend development, machine learning, and software architecture, working on systems involving data processing, real-time communication, and distributed components. Interested in building reliable software systems and continuing to grow as an engineer.

Education

Master of Science in Software Engineering 2026 - expected 2028

University of Southern Denmark (SDU), Sønderborg

Bachelor of Science in Software Engineering Graduated 2026

University of Southern Denmark (SDU), Sønderborg

Bachelor Thesis

Development of a Web-Based System for Digital Haptic Pattern Design, Storage and Playback

Industry collaboration with Hamsø Engineering ApS

National College "Calistrat Hogas"

Graduated 2022

High-school with a curriculum focused on Computer Science, Romania

Selected Highlights

- Developed an industry-sponsored digital haptic design platform in collaboration with Hamsø Engineering ApS.
- Contributed to the development of a machine-learning-based odour detection system achieving 99.78% detection accuracy.
- Reduced manual data processing by 40% through Python automation tools.

Technical Skills

Languages

- Python, C#, JavaScript, SQL, C++, C

Backend & APIs

- FastAPI, SQLAlchemy, Entity Framework, REST APIs, WebSockets

Databases

- PostgreSQL, Redis, SQLite, Supabase, PocketBase

Software Architecture & Design

- System Design, Software Architecture, Distributed Systems Real-Time Systems, Database Design, Data Modelling, Requirements Engineering, UML

Security

- Authentication, Authorization, JWT, RBAC

Data Engineering

- Data Processing Pipelines, Data Ingestion, Data Transformation, Feature Engineering

Machine Learning

- Scikit-Learn, Time-Series Analysis, Model Training & Evaluation, Anomaly Detection, Clustering

Frontend

- SvelteKit, Vite, Electron

Testing & Quality Assurance

- Playwright, Vitest, Automated Testing, Integration Testing

DevOps & Tools

- Docker, Git, Linux, CI/CD

Selected Engineering Projects

HapticStudio - Digital Haptic Design Platform - Bachelor Thesis - studio.hamso.dk

Industry-sponsored full-stack platform developed with Hamsø Engineering ApS for designing, visualizing, testing, and exporting digital haptic patterns, eliminating reliance on low-level haptic APIs and hardware-intensive workflows.

- Designed a modular architecture covering waveform synthesis, playback scheduling, project management, authentication, RBAC, persistence, and export services.
- Developed an interactive waveform editor supporting multiple waveform types, parameter customization, envelopes, and real-time visualization.
- Built a multi-track timeline editor with drag-and-drop composition, layering, reusable presets, filtering, and playback controls.
- Implemented real-time audio synthesis, multi-channel routing, scheduling, and WAV rendering using the Web Audio API.
- Designed REST APIs and PostgreSQL data models for scalable management of users, projects, permissions, and waveform assets.
- Implemented comprehensive testing using Vitest and Playwright, including functional, compatibility, and hardware validation testing.
- Delivered cross-platform browser and desktop deployments using Docker and Electron.
- Applied requirements engineering, UML modelling, and software architecture practices.

Tech: JavaScript, SvelteKit, Vite, Web Audio API, Electron, PostgreSQL, REST APIs, Docker, Vitest, Playwright, RBAC, Authentication, WAV Processing, Agile/Scrum

Scentinel - Intelligent Odour Detection System

Developed with ABENA A/S as part of a multidisciplinary engineering team to detect incontinence-related incidents through sensor fusion, machine learning, and real-time monitoring.

- Designed a distributed architecture integrating ESP32-based eNose devices, FastAPI services, ML inference pipelines, and caregiver dashboards.
- Built a two-stage machine learning pipeline processing H₂S, NH₃, VOC, and CH₄ sensor data for real-time incident detection.
- Implemented secure APIs, RBAC, WebSocket notifications, and separated operational/training databases.
- Developed end-to-end ML workflows including data collection, preprocessing, feature engineering, model training, evaluation, and deployment.
- Contributed to a prototype achieving 99.78% detection accuracy with near real-time alerting.

Tech: Python, FastAPI, Scikit-Learn, ESP32, Supabase, PostgreSQL, Redis, WebSockets, JWT, REST APIs, Machine Learning, Time-Series Analysis, CI/CD

EU Procurement Monitoring System

Machine learning platform for automated monitoring of European public procurement activities using data from the TED (Tenders Electronic Daily) infrastructure.

- Designed a modular data-processing architecture for ingestion, storage, analytics, visualization, and reporting.
- Built automated pipelines for procurement data retrieval, normalization, feature extraction, and preprocessing.
- Implemented anomaly detection and clustering models (Isolation Forest, DBSCAN, K-Means) to identify suspicious procurement behaviour and financial outliers.
- Developed analytics and persistence layers supporting large-scale historical monitoring and reporting.
- Applied Agile/Scrum practices across software engineering, data engineering, and machine learning development.

Tech: Python, Scikit-Learn, Pandas, NumPy, SQLite, Isolation Forest, DBSCAN, K-Means, REST APIs, Data Engineering, Machine Learning, Data Visualization

Professional Experience

CPS contracting, Data Entry Operator, UK London

May 2023 - August 2023

- Developed Python automation tools that reduced manual data handling by approximately 40%.
- Processed and validated thousands of structured records while maintaining high accuracy.
- Queried PostgreSQL databases to support reporting and operational workflows.
- Implemented validation checks that improved data quality and reduced inconsistencies.

Student jobs in Sønderborg

March 2023 - Present

- Night-shift shelf stocker
- Van driver & bakery assistant

Languages

- Romanian — Native
- English — Professional Proficiency
- Danish — Beginner