KIRSTEN ODENDAAL

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Summary

As an internationally experienced engineer (E.I.T) passionate about data science and AI, I have transitioned to applying my technical skills in the AI/ML field. Motivated by solving complex problems through data-driven insights, I aim to blend my engineering background with cutting-edge AI expertise.

Education

Georgia Institute of Technology, Atlanta, GA — Expected: September 2026
MSc. in Computer Science (Machine Learning and Artificial Intelligence)

Delft University of Technology, Delft, NL — July 2021
MSc. in Maritime Technology (Ship Design, Production, Operation): 4.0 GPA (Cum Laude)

University of Alberta, Calgary, CA — September 2019
BSc. in Mechanical Engineering: 3.7 GPA (Distinction)

Awards

- MARITIME DESIGNER OF THE YEAR, Netherlands Maritime Awards Gala — July 2022
- CAPSTONE DESIGN AWARD, Thorsten Watterodt Award for Excellence in Design — May 2019

Experience

Technical Project Manager: Powering and Concept, MARIN – *Wageningen, NL* — October 2021 – Present

- Managed end-to-end projects and directed tool development, generating approximately €375,000 in annual revenue while pursuing new business opportunities and professional collaborations
- Led FOIL JIP data science team to implement data-driven pipeline techniques and time-series models, creating an AWS cloud web application that improved dynamic performance predictions and accelerated simulation speed by over 98%
- Improved off-design performance prediction accuracy by 10% using a machine learning model that bridges CFD and full-scale data through active learning and belief-state quantification
- Re-designed the MARIN engine design tool (MEC) into an NSGA-based optimization framework, managing multi-objective constraints and creating a commercially viable service

Graduate Researcher, De Voogt Naval Architects, TU Delft – *Haarlem, NL* — November 2020 – June 2021

- Achieved national recognition for innovative research and development of a novel grey-box modeling methodology to estimate total vessel energy consumption using real-world operational data, enhancing early-stage vessel design
- Collaborated with a multidisciplinary team to integrate machine learning models into existing workflows, applying Python and TensorFlow, and implementing best practices such as exploratory data analysis and data cleaning to enhance performance and model generalization
- Published research findings in a peer-reviewed (Tier I) journal, contributing to the academic community (publicly *available*)

Marine Design Engineer (Internship), Damen Yachting – *Vlissingen, NL* — June 2020 – October 2020

- Developed a MATLAB framework to replicate and assess the sensitivity of a commercial engineering software, investigating the feasibility of longitudinal strength weight simplifications through a numerical model sensitivity study
- Realized time-savings of 25% to 30% during basic engineering phases while ensuring accuracy deviations within 10%, allowing for new metrics for earlier informed decision-making

Thermal Development Engineer (Co-op), Husky (Cenovus) – *Calgary, CA* — September 2017 – August 2018

- Assist development teams with information gathering, analysis, technical software aid, regulatory approval reports, timeline generation, and implementation to support key development objectives
- Utilized VBA scripting to systematically develop parametric type-curves using curve-fitting and decay analysis approaches for forecasting future well production, ensuring accuracy in long-term planning

Projects

LLM Based PDF Summarizer — github.com/kodendaal/rag_pdf_visualizer

- Developed a Retrieval-Augmented Generation (RAG) based Language Model (LLM) to interact with and summarize general PDF's (marketing material), enhancing personalized client experiences and direct knowledge transfer
- Utilized a novel open-source LangChain framework and integrated local conversational LLM and vector database tools to reduce the risk of hallucinations and privacy leaks.
- Created a Gradio UI for an interactive presentation, demonstrating the approach to upper management and securing further R&D investment for future integration within external and internal applications

Skills

Languages: Python, MATLAB, R, VBA, LaTeX
Frameworks/Technologies: Git, SVN, Langchain, Hugging Face, CUDA
Packages: Gradio, SkLearn, Pytorch, Tensorflow, Pandas, Scipy, Numpy
Certificates/Training: Statistics & Data Science (MITx), Intro to Python Programming (GTx), Statistical Learning (Stanford|O)
Other: Canadian Citizen and authorized to work for any US employer (TN status)