JEPPE HINRICHS

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💼 Employment History

2024 – now	**Electrical Engineer,** Research & Development, Sensata Technologies
2021 – 2023	**Graduate Researcher,** Brain/Biomedical Microsystems Laboratory
2015 – 2017	**Electrical Engineer,** Development & Engineering, Welltec
2014 – 2015	**Intern,** Development & Engineering, Welltec

🎓 Education

2021 – 2023	**Master of Science in Electrical Engineering,** Korea Advanced Institute of Science & Technology
2021 – 2023	**Master of Science in Electrical Engineering,** Technical University of Denmark
2020	**Research Student (Exchange),** Tokyo Institute of Technology, Japan
2018 – 2020	**Bachelor of Electrical Engineering,** Technical University of Denmark
2013 – 2015	**Associate in IT-Technology,** Aarhus Business Academy

🗒 Selected Projects

2023 — Master Thesis | LTspice, Altium Designer, MATLAB, Xilinx Vivado, Jupyter
– Title: *Portable ultrasound system for blood velocity estimation*
– Designed system architecture and state machine of Doppler ultrasound imaging device
– Implemented Zynq 7000 FPGA bitstream for ultrasound pulser control system
– Implemented MCU/FPGA interconnects, registers and flags and conducted signal propagation analysis

2023 — A wearable pH sensor based on a flexible charge-coupled device | Nanofabrication
– pH sensor exceeded Nernst limit by accumulating charges
– Flexible Schottky-junction control CCD-based
– Wearable sensor with $\Delta V > 2.5V$ over pH range

2022 — Biomedical MEMS and Electrical Engineering | MATLAB, Simulink, Coventorware
– Title: *Characterizing a Hydraulic Displacement Amplifier for a Piezoelectric Microvalve*
– Simulation and characterization of piezo-electric actuator platform for microfluidic valve applications
– Fabrication of MEMS device for validation
– Achieved high-frequency ($1\,kHz$), high-pressure ($300\,kPa$) and large stroke targets ($30\,\mu m$)
– Estimated flow rate at $0.21\,mLs^{-1}$ with a $1\,kHz$ driving voltage of $500\,V$ peak-to-peak

2021 — Fabrication of Dopamine Sensor | COMSOL Multiphysics, Nanofabrication, Photolithography
– Design and simulation of dopamine sensor using simulation software
– Fabricated sensor from ground-up in a cleanroom environment
– Using state-of-the-art fabrication machines to validate process and wafer yields

2020 — High-Speed Convolutional Neural Network Accelerator | Xilinx Vivado, Jupyter
– Conducted study into training models for machine vision
– Achieved highly parallelized accelerator that maximizes computational and resource efficiency
– Implementation of low-resolution CNN inference was 17x in comparison with a baseline

⭐ Skills

Languages	🔤	Danish, English, German, Japanese, Korean
Coding	</>	C/C++, Python, Bash, LabVIEW, Assembly, Make
CAE/CAD	🔌	Altium Designer, KiCAD, OrCAD, LTspice, Qspice, Simulink, Fusion 360
Technologies	>_	Linux, Git, RTOS, Xilinx Vivado, MATLAB, NI-DAQ
Misc.	👤	Academic research, teaching, training, microcontrollers, computer hardware, exercise, music

⚒ Miscellaneous Experience

2023	🔖	**Scholarship Award,** from Siemens Foundation for research project funding at KAIST in South Korea
2020	🔖	**Scholarship Award,** from Scandinavia-Sasakawa Foundation for research project at Tokyo Institute of Technology in Japan