

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

☰ Selected Projects

- 2023 **Master Thesis** | LTspice, Altium Designer, MATLAB, Xilinx Vivado, Jupyter
- Title: *Portable ultrasound system for blood velocity estimation*
 - Analysed research in devices for estimating the velocity of blood
 - 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 necessary for operation
 - Performed in-depth signal propagation analysis to determine validity of bitstream
- 2023 **A wearable pH sensor with high sensitivity 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 $\Delta V > 2.5 \text{ V}$ over pH range
 - Integrated temperature sensor using carbon nanotube principle
- 2022 **Biomedical MEMS and Electrical Engineering** | MATLAB, Simulink, Coventorware
- Title: *Characterizing a Hydraulic Displacement Amplifier for a Piezoelectric Microvalve*
 - Characterization of piezo-electric actuator platform for microfluidic valve applications
 - Simulated and fabricated MEMS device for validation of characterisation
 - Achieved high-frequency (1 kHz), high-pressure (300 kPa) and large stroke targets (30 μm)
 - 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 measurement

★ 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