Jeppe Hinrichs Test

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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
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 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

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