# Jeppe Hinrichs Test

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## Employment History

2024 – now **Firmware 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

2024 **18 - Cell Monitoring Unit** | C++, ISO26262, Functional Safety
– Platform development of hardware/software device driver for new peripheral IC
– Implementation of functional safety mechanisms and unit-testing
– Using static code analysis in Klocwork and CTC++ to ensure defensive programming paradigm is met

2024 **Temperature sensor characterization and optimization** | C++, Binary Search Algorithm
– Led investigation of performance and accuracy of Steinhart-Hart model on Arm Cortex©-R4 MCU
– Implemented optimized temperature calculation algorithm with binary search and interpolation on LUT
– Computational overhead metrics on target decreased by $>50\%$ using improved algorithm

2023 **Master Thesis** | LTspice, Altium Designer, MATLAB, Xilinx Vivado, Python
– Title: *Portable ultrasound system for blood velocity estimation*
– Analysed research in devices for estimating the velocity of blood
– Designed system architecture of portable pulsed-wave Doppler ultrasound imaging device
– Implemented Zynq 7000 FPGA bitstream for ultrasound pulser control system
– Synthesised Arm Cortex©-A9 based DSP with Fourier analysis

2020 **Bachelor Thesis** | LTspice, Altium Designer, MATLAB, Simulink
– Title: *Influence of the output filter parasitic elements on a switch-mode audio amplifier*
– Led a study into hitherto unexplored control theory of parasitic elements in electronic components
– Simulated and synthesized AIM class-D amplifier design
– Devised proposal of compensation strategy to improve control loops affected by parasitic elements

2017 **Well Depth Acquisition** | C++, Fusion 360, OrCAD
– Project lead on solution to enable universal telemetry capability during intervention and logging
– Implemented mission-critical master and multi-slave half-duplex communications bus over RS485

## 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