Janus Bo Andersen

Danish/EU citizen. Relocated back to Copenhagen/Malmö area in August 2023.
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EMBEDDED ELECTRONICS ENGINEER PROFILE

- In my career, I have enjoyed working in both start-ups and corporates, small and large teams, sometimes taking leadership roles, coordinating and communicating with a multitude of stakeholders and seeing projects from the requirements stage through test and deployment.
- Going on 10+ years experience with developing software and 1-2 years with embedded electronics.
- Initially built quantitative finance and risk management solutions, analytics and productivity software.
- Upskilled to work on embedded electronics. Have since developed computer vision, signal processing and robotics applications on microcontrollers, FPGA and SoC platforms. Have also enjoyed hands-on with custom electronics, designing, assembling and testing PCBAs for power, RF and analog applications at a quantum start-up.
- Worked on a personal 'start-up' product (related to logic synthesis for FPGAs and VLSI) from mid-'22 to '23. Parked it indefinitely to prioritize our relocation, and because I miss having great colleagues to collaborate with.
- My career began with an MSc in quantitative finance, and I later added a BEng in Electronics to upskill to understand electronics, device physics and hardware architecture. Enrolled in a *part-time* 4-year MSc Electronics Engineering degree from Aug. 2023 to continue that journey while working and solving real problems *full-time*.

EDUCATION

Industry M.Sc. Electrical Engineering | Technical University of Denmark (DTU), Denmark — Aug. 2023 –
The Industry Master of Science in Engineering (EE.), combines *full-time work* with studies over a 4-year period.

B.Eng. Electronics (Embedded Systems) | Aarhus University, Denmark — 2018 – 2022
Top of the year with GPA 11.9 (12-point scale). Elected to education committee.

M.Sc. Finance | Aarhus University, Denmark — 2007 – 2009
Top of the year with GPA 11.5 (12-point scale). Selected for Boston Consulting Group's international case competition.

B.Sc. Economics and Business | Aarhus University, Denmark — 2004 – 2007
Top of the year with GPA 10.6 (previous Danish grading scale). Exchange at Singapore Management University. Received McKinsey Award First Prize for best B.Sc. result.

SELECTED PROFESSIONAL EXPERIENCE

Electronics Engineering applied to Quantum Sensing (deep tech internship) — 2022/2 – 2022/7
Atomionics, Singapore

- Developed high-performance PCBAs used in state-of-the-art quantum sensing product (cold atom interferometry), in close collaboration with Physics and Mechanical Engineering teams.
- Evaluated electronics platforms and software for experiment control, data acquisition, RTOS and GUI libraries (C/C++).

Prototype R&D engineering project — 2021/8 – 2022/1
Bang & Olufsen, Denmark

- Greenfield prototype robotics and vision system to automate UI testing of touch-based products.
- Implemented (a) control algorithms to physically interact with physical UI on devices under test using a 6-DOF robot and (b) computer vision algorithms to perform real-time video analysis and verification of visual UI feedback.

Systems Developer — 2021/3 – 2021/7
TransAsia Private Capital, Singapore

- Ownership of legacy code base of in-house trading and portfolio management system during period leading up to the replacement with a commercial solution. Set up new data pipelines and risk/analytics dashboards.

Applied Machine Learning and Computer Vision Intern (deep tech internship) — 2021/1 – 2021/3
Seventh Sense AI, Singapore

- Projects in facial recognition using deep learning: Supported optimization of logic for real-time FR, implemented GUI for AR. Prepared provisioning for deployment to custom CPU-based devices. Bring-up of Xilinx MPSoC FPGA dev platform.

Freelance/Consultant Developer — 2016 – 2017
Sold to Novo Nordisk A/S and a smaller, derived version deployed with a private management consulting network

- Developed desktop productivity tool (visual communications). Rolled out to 2,000++ employees globally, in use today.

Head of Finance, Legal, Logistics & IT — 2014 – 2016
Novo Nordisk Pharmaceuticals (Philippines) Inc., Philippines

- Successful turn-around project in affiliate with new team, e.g. driving operating profit CAGR of 20.9% over two years, versus -2.5% CAGR in two years prior, contributed to sales CAGR of 23.7% over two years vs. 4.1% two years prior, growing affiliate from less than 60 FTEs in early '14 to more than 100 in '16.
- Led department of 10 local employees, building team up from 3. Attracted 3 international employees on EBTs and longer rotations. Selection of projects delivered with team: New office, car program, internal control program, invoice capture system, inventory management reducing stock-outs.

Financial Risk Manager 2011 – 2014

Novo Nordisk A/S, Corporate Treasury, Denmark

- Developed quantitative multi-currency hedging and risk mgmt. system with strategy and audit inputs from McKinsey and PwC during 2012-13. System yielded stronger risk insights and decision support due to the impacts of currency volatility, correlations and cash flow uncertainty on net financials and operating profit.
- Drove hedging of major currencies during 2013-2014, with a total position in OTC forwards and options equivalent to about USD 5 billion nominal (8-14 months horizon), as well as capital structure actions during 2011-2013, e.g. buybacks of DKK 14 billion (USD 2.3 billion) in 2013.

Global Finance Graduate 2009 – 2011

Novo Nordisk, Denmark, India, China

- 2-year international finance talent programme with project rotations in Denmark, India (Bangalore) and China (Beijing).

Quantitative Analyst 2007 – 2009

Jyske Bank A/S, Quantitative Research, Denmark

- Developed, implemented and tested credit risk models on the bank's loan portfolio, with focus on PD and EAD, and introduced use of a robust estimation method and non-parametric statistics.

SELECTED LARGER TECH PROJECTS

- High-performance PCBAs used for quantum sensing; RF design for 6.8 GHz signal chain on RO4350B high-speed laminate for Analog Devices SSB IQ mixer and RF switches, high-current DC-DC power modules implementing SynQor MIL-COTS converters, photodetectors with transimpedance amplifiers, controller boards implementing PID and sample & hold (mixed-signal design). *[For Atomionics Pte. Ltd. Not in the public domain. Contact me for details or references.]*
- Automated robotics and computer vision system for testing user-interfaces of high-end audio products. *[For Bang & Olufsen A/S. Not in the public domain. Contact me for details or references.]*
- IOT/Smart industrial energy metering with wireless M-Bus communication, using on-premises gateways and Cloud backend. *[For Remoni A/S. Not in the public domain, except the WM-Bus driver here. Contact me for details.]*
- Development of in-house multi-currency forex risk mgmt. system deployed in Treasury of multinational corporate. *[For Novo Nordisk A/S. Not in the public domain. Contact me for details.]*
- Desktop productivity software rolled out to 2,000+ employees globally at industry-leading pharma company. *[Sold to Novo Nordisk A/S. Not in the public domain. Demo screens from a smaller, derived project are available here.]*
- Computer vision pipeline for 3D scene reconstruction and image depth-segmentation using multiple views. *[Advanced Digital Signal Processing self-driven project, available here.]*
- Hardware accelerated ML inference on SoC/FPGA edge devices, processing vision data faster, with lower power. *[Advanced Digital Design self-driven project, available here.]*
- DSP algorithms indicating heart arrhythmias and measuring heart rate variability (HRV) using 12-lead ECG data. *[Digital Signal Processing self-driven project, available in Danish here.]*
- Quadrotor drone dynamic control system development. *[Dynamic Systems self-driven project, available here.]*
- Lab equipment-as-a-service, deploying dockerized backend using Django, responsive frontend and IoT connection using MQTT. *[1 year project at Aarhus University.]*

TECHNICAL SKILLS

Languages: Danish (native) • English (fluent) • German (business: B2/C1) • Swedish (conversational) • Mandarin (basic).
Software development: Python 3 (7+ years), C (6+ years), C++11/14/17 (4+ years), Matlab (3 years), Bash/sh, VBA.
Machine learning and analytics: Keras/Tensorflow, Scikit-learn, Pandas, NumPy, SciPy, Matplotlib.
Computer vision: OpenCV (Python/C++) • Image Processing Toolbox/Matlab, Computer Vision Toolbox/Matlab.
Test systems: PyTest • GoogleTest (C++).
Build, version control and DevOps: CMake 3.x, Make • Git, Github • Docker, Docker-compose • Jira.
Embedded MCU platforms: FreeRTOS, Zephyr (RTOS) • Arm CMSIS (BSP/HAL) • Arm Cortex-M0+, Cortex-A8 • TI C5535 DSP.
Embedded SoC/FPGA platforms: Xilinx Zynq-7000 SoC, Artix-7 FPGA.
EDA tools: KiCAD 6 (schematic, PCB layout) • SPICE (simulation) • Xilinx Vivado/Vitis, SDK, SDSoC (synthesis) • VHDL, C++HLS.
Linux and cloud: Oracle Linux 7, CentOS 7, Ubuntu 18.04, 20.04 • AWS (EC2, S3, CloudFront).
Digital signal processing: DSP/Matlab, Filter Designer/Matlab.
Networking and communication protocols: MQTT, Sockets, TCP/IP • CAN, I^2C, SPI, UART.
Web technologies: Django, Flask • Nginx • HTML5, CSS, Bootstrap 4.
Databases: Raw SQL query design and ORM • PostgreSQL, MongoDB.
Other: SolidWorks • MS Office, Access • SAS BASE, STAT, IML, SQL • SAP FI/CO, BW • Control System/Matlab • Simulink.