Janus Bo Andersen

Embedded electronics engineer with strengths across software and hardware development, signal processing, computer vision, machine learning, people management and leadership.

PERSONAL INFORMATION

Danish/EU citizen, Singapore PR. Relocating to Denmark in August 2023.
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SUMMARY

- Embedded electronics engineer with broad prior experience and proven performance across multiple domains.
- Made mid-career move with a fresh B.Eng. degree from H2 2022. Accepted into Industry M.Sc. EE. from Sep. 2023.
- M.Sc. Finance and B.Sc. Economics, 10 years of impact with analytics, projects, leadership from finance and life sciences.

SELECTED TECH PROJECTS

- High-performance PCBAs used for quantum sensing; RF design for 6.8 GHz signal chain on RO4350B high-speed laminate, high-current DC-DC power modules implementing MIL-COTS converters, photodetectors with transimpedance amplifiers, controller systems boards implementing PID and sample & hold algorithms (mixed-signal design).
- Automated robotics and computer vision system for testing user-interfaces of high-end audio products.
- Computer vision pipeline for 3D scene reconstruction and image depth-segmentation using multiple views.
- Hardware accelerated ML inference on SoC/FPGA edge devices, processing vision data faster, with lower power.
- DSP algorithms indicating heart arrhythmias and measuring heart rate variability (HRV) using 12-lead ECG data.
- Quadrotor drone dynamic control system development.
- In-house development of multi-currency forex risk mgmt. system deployed in Treasury of multinational corporate.
- Desktop productivity software rolled out to 2,000+ employees globally at industry-leading pharma company.
- Lab equipment-as-a-service, deploying dockerized backend, responsive frontend and IoT connection using MQTT.
- Smart industrial energy metering with wireless M-Bus communication, on-premises gateways and Cloud backend.

EDUCATION AND AWARDS

M.Sc. Electrical Engineering | Technical University of Denmark (DTU), Denmark — Sep. 2023 –
Enrolled in the Industry Master of Science in Engineering (EE.), combining 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.

- Bachelor's thesis: Automated UI testing (collab. with Bang & Olufsen, Denmark).
- Core focus on embedded systems, software engineering, signal processing, analogue and digital electronics.
- Elective focus on machine learning, computer vision, linear algebra, SoC design.

M.Sc. Finance | Aarhus University, Denmark — 2007 – 2009
Top of the year with GPA 11.5 (12-point scale).

- Master's thesis: Portfolio aspects of commercialization of microfinance (received highest grade).
- Focus on corporate finance, financial engineering, quantitative methods, statistics, econometrics.
- Selected for Doing Business in China, an international case competition by Boston Consulting Group.

B.Sc. Economics and Business | Aarhus University, Denmark — 2004 – 2007
Top of the year with GPA 10.6 (previous Danish grading scale).

- Bachelor's thesis: Interest-rate term structure models (received highest grade).
- Exchange at Singapore Management University. Received McKinsey Award First Prize for best B.Sc. result.

PROFESSIONAL EXPERIENCE AND ACHIEVEMENTS

Electronics Engineering applied to Quantum Sensing (deep tech internship) — 2022/2 – 2022/6
Atomionics Pte. Ltd., Singapore

- Designed, sourced, assembled, tested, and implemented high-performance PCBAs used in state-of-the-art quantum sensing product (cold atom interferometry), in close collaboration with Physics and Mechanical Engineering teams.
- Procurement and troubleshooting of experiment control systems, data acquisition equipment and other electronics.
- Developed numerical gravimetry simulations (Py-based tool), performed RTOS and GUI library evaluations (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 control algorithms to physically interact with UI on devices under test using a 6-DOF robot.
- Implemented computer vision algorithms to perform real-time video analysis and verification of visual UI feedback.

Systems Developer (Associate Director of IT) 2021/3 – 2021/7

TransAsia Private Capital, Singapore

- Management and migration of legacy trading/PM system. Scoping of replacement PM system. Data analytics, pipelines.

Consultant Developer 2016 – 2017

Novo Nordisk A/S (contract)

- 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

- Achieved operating profit CAGR of 20.9% over two years, versus -2.5% CAGR in two years prior, exceeding targets by driving finances and budgets through turn-around. Hit operating margin of 55%.
- Contributed to sales CAGR of 23.7% over two years vs. 4.1% two years prior and growing affiliate from less than 60 FTEs in early '14 to more than 100 in '16, by driving turn-around together with new management team. Delivering key inputs to focused strategy, new product launches and investments in the market, winning market share.
- Led department of 10 local employees, building team up from 3 and driving performance through team leader structure. Attracted and led 3 international employees joining on longer rotations and EBT to deliver projects.
- Key projects delivered with team: Implemented internal control program. Implemented invoice capture, travel and expense management, and procurement IT systems. Stepped-up logistics for launches and no stock-outs. Business ethics compliance by training Sales and tracking healthcare provider interactions. Launched new office.

Financial Risk Manager 2011 – 2014

Novo Nordisk A/S, Corporate Treasury, Denmark

- Drove hedging of the OP impact from major currencies on Group operating profit with 8-14 months target horizon during 2013-2014, managing position in OTC forwards and options, equivalent to about USD 5 billion nominal.
- Developed and implemented quantitative multi-currency hedging and risk mgmt. system with McKinsey and PwC during 2013, approved by Audit Committee and Corporate Financial management, achieving stronger insights in the impacts of currency volatility, correlations and cash flow uncertainty on net financials and OP.
- Drove analyses of pharma peer group capital structure and subsequent recommendations to Executive Management and Board of Directors during 2011-2013, ensuring competitive capital structure changes, resulting in extensive buyback programmes of e.g. DKK 14 billion (USD 2.3 billion) for 2013, and 36% and 25% dividend growth for FY11 and FY12.

Global Finance Graduate 2009 – 2011

Novo Nordisk, Denmark, India, China

- 2-year international talent programme with rotations in four areas of the global organisation. Key achievements:
- Beijing, China in 2010-2011: Chinese healthcare system analysis and distribution system review yielding recommendations to local and global finance organisations.
- Posted to Bangalore, India in 2010: Expansion project of the Global Service Centre by supporting set-up of new VP area, benchmarking and policy alignment for incoming divisions, receiving off-shoring of finance processes from affiliates. Project enabled growth from a 50 FTE centre in 2010 to a global service hub with > 400 FTEs in 2014.

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.

TECHNICAL SKILLS AND EXPERIENCE

Languages: Danish (native) • English (fluent) • German (business) • Mandarin (basic).
Software development: Python 3 (4+ years), C (3+ years), C++11/14/17 (3 years), Matlab (3 years), Bash/sh, VBA.
Machine learning and analytics: Keras/Tensorflow, Scikit-learn, Pandas, NumPy, SciPy, Matplotlib.
Computer vision: OpenCV • 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.
Web technologies: Django, Flask • Nginx • HTML5, CSS, Bootstrap 4.
Databases: Raw SQL query design and ORM • PostgreSQL, MongoDB.
Networking and communication protocols: MQTT, Sockets, TCP/IP • CAN, I^2C, SPI, UART.
Other: SolidWorks • MS Office, Access • SAS BASE, STAT, IML, SQL • SAP FI/CO, BW • Control System/Matlab • Simulink.