

Davide Norbiato

POWER ELECTRONICS · MOTOR DRIVES · EMBEDDED HARDWARE · EMC COMPLIANCE

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Cambridge, UK · British and Italian citizen · SC clearance eligible · Available for contract engagements

PROFILE

Power electronics and embedded hardware consultant with 15 years across industrial motor drives, medical devices and high-voltage equipment. I take hardware from requirement to a working, compliant, manufacturable product, usually as the sole electronics owner. Most recently I designed an 11 kW, 480 V three-phase industrial variable frequency drive end to end, from thermal analysis and schematic capture through multilayer layout to bring-up, with no errors found on the first build. Before that I was sole electronics architect for Ori Biotech's Iro platform, a GMP-grade automated system for cell and gene therapy manufacturing now deployed in the field.

CORE CAPABILITIES

- **Power electronics** Three-phase inverters and motor drives, IGBT and SiC, gate drive, thermal design, protection and derating.
- **EMC compliance** Design for compliance, emissions debug and mitigation, pre-compliance and accredited-lab certification to IEC 61800-3, 61010, 61326, RED and FCC.
- **PCB design** Multilayer boards mixing high-voltage, high-speed digital and precision analogue domains; controlled impedance; Altium and KiCad.
- **Embedded firmware** Motor control including sensorless BEMF, RTOS, DMA, SPI, I2C, RS485 and Modbus.
- **Precision measurement** Load cells, high-accuracy analogue front ends, and inline bioprocess sensing by electrochemical impedance spectroscopy.
- **Test infrastructure** Dynamometers, EMC load rigs, production test fixtures, and Python test automation.
- **End-to-end ownership** Requirements, supplier selection and onboarding, DFM, production transfer and certification.

EXPERIENCE

Director and Principal Consultant

NORB UN LIMITED | Aug 2026 - present | Cambridge, UK

- Independent electronics consultancy covering power electronics and motor drives, high-speed digital, precision analogue and EMC compliance.
- Contract and fixed-price engagements for clients in industrial, life sciences and defence sectors.

Staff Power Electronics Engineer

Xylem, Electronics Centre of Excellence | Nov 2025 - Jul 2026 | Cambridge, UK

- Owned the electronics design of an 11 kW, 200 to 480 V three-phase industrial variable frequency drive rated for 150% overload, from requirements and thermal analysis through schematic capture, multilayer layout and DFM to bring-up. The first build passed functional test with no board errors and became the highest-power inverter the group had validated.
- Rebuilt and upgraded the laboratory dynamometer to extend the test envelope, then cleared electrical safety and mechanical risk assessments to characterise the drive beyond the bench supply limit.
- Led EMC strategy across a family of pump drives: emissions debug and mitigation, accredited external lab testing, and cross-correlation between the in-house chamber and accredited labs to raise confidence in pre-compliance results.
- Identified a gap between the planned test method and the IEC 61800-3 requirement to test under representative load. Designed, built and validated a compact load rig that fits a semi-anechoic chamber and scales across the drive family.
- Managed an IGBT module obsolescence transition across two products: sourced and characterised the replacement, re-sequenced validation, and held the customer stage gate date.
- Recovered a design handed over with more than 300 rule violations, driving them to zero alongside a junior engineer I coached, and advised a staged low-volume UK build to de-risk the production transfer.
- Ran supplier selection and onboarding for PCBA and machined heatsinks, including a documented quality case against an underperforming incumbent.

Lead Electronics Engineer

Ori Biotech | Jul 2022 - Oct 2025 | Cambridge, UK

- Sole electronics architect for the Iro platform, a GMP-grade automated cell and gene therapy manufacturing system, from concept through to production.
- Designed the full multi-board control architecture: motion systems, sensor interfaces, board-to-board communication, power distribution and MCU firmware.
- Led system-level EMC strategy and pre-certification testing to IEC 61010 and 61326.
- Originated and delivered a lab-validated inline sensing proof of concept using electrochemical impedance spectroscopy, and documented a path to productisation.
- Built bioprocess modelling and simulation tools in Python and MATLAB, and contributed to IP filings and the system architecture roadmap.

Lead Electronics Engineer

Cytiva, formerly GE Life Sciences | Jul 2018 - Jun 2022 | Cambridge, UK

- Delivered embedded hardware and control electronics across the VIA product family: VIA Thaw, a Class I medical device, and the VIA Freeze, Extractor and Capsule industrial and laboratory instruments.
- Led design for EMC and global compliance testing across EU, US and Asian markets.
- Built GUI-based automated test frameworks in Python, working cross-functionally with software, mechanical and QA teams through to volume production.

R&D Lead Engineer

Siemens S.p.A. | Apr 2014 - Jun 2018 | Venice, Italy

- Led development of embedded IoT monitoring systems for medium and high-voltage substations, including the Assetguard MVC switchgear monitoring product.
- Developed signal processing algorithms for circuit breaker trip, close and contact wear diagnostics, and owned type testing, certification and field deployment.

Test Engineer

Siemens S.p.A., SVEPPI Laboratory | Dec 2011 - Mar 2014 | Scorze, Italy

- Conducted accredited high-voltage and high-power type tests and calibration procedures on substation and power station equipment.
- Authored technical documentation supporting product certification.

SELECTED INDEPENDENT WORK

- 80 V, 150 A three-phase BLDC motor controller, designed from scratch: 100 V TOLL MOSFET power stage, gate drive, current sensing and protection on my own multilayer board.
- Wrote its motor control firmware from scratch: six-step commutation with Hall sensor feedback. Built as a bench platform for ongoing motor drive and control development.

EDUCATION

BSc, Electronic Engineering

University of Padua | 2008 - 2011 | Final score 100/110

- Thesis in industrial electronics: inductance estimation in voltage regulator modules.

TECHNICAL SKILLS

- **Tools** Altium Designer, KiCad, LTspice, MATLAB, Python, C, Inkscape, Git.
- **Hardware** Power electronics, inverters and motor drives, embedded systems, analogue and digital design, motion control, thermal design, high voltage.
- **Protocols** SPI, I2C, RS485, RS232, CAN, Modbus, MQTT.
- **Compliance** IEC 61800-3, 61010, 60601, 61326, EMC Directive, RED, FCC.
- **Languages** Italian (native), English (fluent), Spanish (intermediate).