# JAMES KINCELL MEng (Hons) MIET
## Electronic Design Engineer

Electronics Engineer (MEng, MIET) with a strong background in designing, building and troubleshooting complex electronic systems. I'm now applying my skills to interactive, lighting and immersive installations — combining all my engineering experience with a passion for hands-on creation, lighting, and bringing ideas to life. I love building systems that work, solving real-world problems, and collaborating on projects that merge technology and creativity.

## EXPERIENCE

### Thales Group – Defence Mission Systems, Electronic Design Engineer
OCT 2022 – PRESENT

- Designed and commissioned specialist electronics for sonar and test systems.
- Designed, built and tested Special-to-Type Test Equipment (STTE) to test and validate complex hardware.
- Diagnosed faults on legacy PCBs with limited documentation, producing practical fixes and replacement solutions.
- Created detailed test and commissioning procedures for production teams.
- Collaborated with multidisciplinary engineers to solve integration and reliability issues.
- Authored comprehensive Production Test Specifications (PTS) defining certification criteria for ship and submarine installed equipment.
- Designed, proved, evaluated and debugged electronic systems, including solutions to overcome component obsolescence.
- Developed specialist daughterboards for PCI backplane carriers, implementing key maritime communication protocols.
- Maintained strong stakeholder relationships and ensured effective communication through all design stages

### Waters Corporation (Micromass UK), Electronic Design Engineer – Advanced Mass Spectrometry Technologies.
FEB 2022 – OCT 2022

- Developed compact high-voltage power-supply modules and analogue circuitry for high-precision mass-spectrometry instruments.
- Delivered hardware redesigns under tight mechanical constraints to reduce component count, save space and lower cost.
- Designed and validated multi-output HT modules (±430 V range, thermally compensated from 10 ppm → 2 ppm).
- Prototyped, assembled and verified circuits using bench-test equipment and custom fixtures.
- Produced documentation and test procedures supporting transition to production.

### Waters Corporation (Micromass UK), Electronic Design Engineer – Electrical and Electronic Engineering Team.
FEB 2018 – FEB 2022

- Designed and maintained electronic subsystems across several mass-spectrometer platforms.
- Improved signal-processing stability by refining FPGA (VHDL) and analogue front-end designs.
- Developed and characterised a dual-gain RF pre-amplifier for Time-of-Flight instruments, performing S-parameter and gain-compression testing.

## CONTACT

- Stockport, Greater Manchester
- +44 7716 920002
- jameskincell@gmail.com
- www.currentsauce.co.uk
- linkedin.com/in/james-kincell

## SKILLS OVERVIEW

**Electronics & Systems:**
- **Design and Integration** Analogue, Digital, Embedded & Power Electronics
- **Embedded Systems** Microchip/Atmel, STM32, ESP32, Arduino
- **Circuit Simulation & Verification** LTspice, Oscilloscopes, Analysis
- **Lighting and Control Protocols** DMX, Art-Net, RS-232, MQTT, IoT integrations, SPI, $I^2C$, UART, 1-Wire
- **Schematic Capture & PCB Design** Mentor Xpedition, Cadence Allegro, CadSTAR, KiCad
- **3D Design** SolidWorks, OnShape

**Lab Skills:**
- **Soldering** to a professional standard
- **Surface Mount** down to 0402 size
- **Modification and Rework** to IPC standards

**Equipment Skills:**
- Oscilloscopes  Spectrum Analysers
- Vector Network Analysers
- LCR Bridges  Function Generators
- Arbitrary Wave Generators
- Digital Multimeters

**Other Software & Toolchains:**
- **Embedded IDE:** Microchip MPLAB X, STM32CubeIDE, Arduino IDE/PlatformIO
- **FPGA:** Xilinx Vivado, Altera Quartus
- **Analog/RF Simulation:** LTspice
- **Signal Integrity:** Mentor HyperLinx
- **CAD:** OnShape, SolidWorks
- **Version Control:** GIT, SVN
- **OS:** Windows, Mac and Linux – GUI & CLI

**Programming / Scripting:**
C/C++ for Embedded, VHDL, Visual Basic, Visual C, Python, C Shell / BASH

**STEM Ambassador:**
Active STEM ambassador. Developed many hands-on demos for outreach events while at Waters Corporation.

**Repair Café Volunteer:**
Electrical & Electronics Repair Specialist at monthly Bramhall Repair Café.

**OutdoorLads Event Tech Lead**
Volunteer role, mainly for "BIG Events"

- Created and simulated analogue circuits for RF-generator platforms in LTspice, shortening development cycles.
- Supported prototype builds, fault-finding and system verification during lab commissioning.
- Contributed to formal design reviews and documentation across the full engineering lifecycle.

### Thales Group – Defence Mission Systems, Digital Design Engineer
OCT 2016 – FEB 2018

- Worked within a small Digital/FPGA sub-team, developing Thales-designed hardware incorporating Artix-7 and Kintex-7 FPGAs.
- Designed, simulated and implemented VHDL-based control logic using Xilinx Vivado and Mentor QuestaSim.
- Designed, tested and integrated add-on daughterboards (mezzanine cards) providing additional connectivity such as HOTLink (8b/10b) and serial interfaces (RS-232, RS-485, RS-422).
- Assisted production and installation teams with board-level troubleshooting and repair.
- Contributed to updates that improved reliability and serviceability of deployed equipment.

### Thales Group – Defence Mission Systems, Electro-Mechanical Engineer
OCT 2015 – OCT 2016

- Key member of the hardware development team, supporting the design, maintenance and improvement of existing product lines.
- Created test scripts and monitoring tools to simulate equipment, record BIST (Built In Self Test) data and verify thermal performance.
- Performed hands-on fault-finding and parameter verification, identifying and resolving design oversights before release.
- Provided on-site technical support for overseas projects (including field work in Brest, France).
- Maintained detailed build and test logs to support traceability and collaborative problem-solving.

### DC Voltage Gradient Technology & Supply (DCVG), Electronics Engineer
OCT 2014 – OCT 2015

- Developed new survey instrumentation using PIC18F microcontrollers with SD, USB and GPS interfaces.
- Produced working prototypes including PCB design, assembly and firmware development.
- Delivered on-site testing, calibration and technical support for equipment used in field operations.
- Collaborated closely with mechanical engineers and end users to refine functionality and reliability.

### Imagination Technologies Ltd, Verification Engineer
Summer Internship: JUL 2012 – SEP 2012 & JUL 2013 – SEP 2013

**REFERENCES:**
On Request

## EDUCATION

**2010 to 2014:** The University of Manchester, M.Eng. in Electrical and Electronic Engineering, Second Class Division One Honours

**2007 to 2009:** John Leggott College, Scunthorpe. Maths, Physics, Computer Science and Electronics at A-Level, four A's

**2002 to 2007:** Hatfield Visual Arts College, Doncaster, 14 GCSE's, (9 A, 3 B & 2 C's), IGNVQ (worth 4 GCSEs)

## SELECTED PROJECTS

↘ **LED Matrix Display** – Designed, assembled and programmed a large-format addressable LED matrix for interactive lighting effects at public events.

↘ **Canal & River Trust Pride Bike** – Built a portable, battery-powered PA speaker system for a public engagement installation.

↘ **Hot Tub Controller Repair** – Diagnosed and repaired a failed relay on a control PCB; verified function under load.

↘ **Home Automation / Smart Lighting** – Integrated lighting and sensors via Home Assistant and ESP32 modules for responsive, energy-efficient control.

**Full write-ups at** 🪐 **currentsauce.co.uk** — My website covering electronics builds, IoT projects, repairs, hacks and interactive lighting systems.

University projects included sensor-driven robots and embedded control systems integrating wireless comms and wire detection Hall-effect sensors.

## PROFESSIONAL DEVELOPMENT

**Product Design for EMC**
TÜV SÜD / Mach One Design EMC Consultants

**Comprehensive VHDL (VHDL for Designers and Advanced VHDL)**
Doulos

**Signal Integrity with Hands-On Simulation**
EE-Training

**Designing FPGAs with the Vivado Design Suite 3**
Core-Vision