Analogue electronics engineer
£30,000 to £60,000, London

Company infomation
Cortirio's mission is to save lives by developing low-cost, portable brain imaging.

Traumatic brain injury (TBI) is the most common cause of death and life-long disability amongst the under 40s. Current brain imaging technology is non-portable and expensive, causing delays to treatment and costing lives. The problem is even more acute in low and middle income countries: two-thirds of the world's population lack access to even basic medical imaging.

Cortirio are developing a portable headband that enables diagnosis at the scene of an injury. Our technology uses infrared light to image blood at high resolution and automatically detect injuries. As we don't use X-ray radiation, scans can be run continuously to alert staff if a patient needs attention, much as a heart rate monitor raises an alarm if someone's heart stops. Our product could save millions of lives lost to head injuries, but the technology behind it could do even more. Our roadmap includes stroke, age-related decline and mental health.

Job summary
The role is to design, develop, characterise and validate a optical measurement array. This will involve analysis of the analogue and digital signal processing chains, characterising the system over PVT (process, voltage, temperature) and developing firmware for the measurement system. This is an exciting multidevice architecture to be involved in with lots of opportunity to shape its design, implementation and performance.

This role offers the chance to have a big impact on a global problem whilst working at the cutting edge of technology. You will work in a small, collaborative team and have a significant role in shaping the development of the product. There are options for flexible and remote working. Stock options will be offered.

Job responsibilities
- Develop photodiode arrays and analogue measurement system
- Design and analysis of the full measurement chain (including sensor, amplifier, ADC)
- Digital signal processing design and development
- Measurement firmware across a multi-CPU, multi-device architecture
- System testing, characterization and calibration over PVT

Core experience
- Analysis and design of analogue signal acquisition chains
- Digital and analogue signal processing theory and practical analysis
- System testing and characterisation over PVT
- Firmware development
- C or C++

Desirable experience
- Developing photodiode or photomultiplier circuits
- Design of low-current, low-noise amplifiers
- Analogue PCB design
- General firmware development competence
  - e.g. clock setup, power gating, sleep modes, interrupt management
- Communications firmware development
  - SPI, I2C, CAN, USB, PCIE, LVDS
- Python
- ARM, AVR instruction set