

Computational physicist

£30,000 to £60,000, London

Company information

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 develop software for optical imaging of intracranial blood. This will involve translating complex physical models into efficient software implementations. You will develop software architectures to control and record hardware measurements, feed this data into physical models and generate maps of blood within the brain. You will create automated testing suites to validate updates during development.

This project 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

- Design software architectures to implement inverse models applied to optical tomography
- Work with the hardware engineers to integrate software and hardware systems
- Develop test suites to validate each component of the system
- Improve the software to optimise imaging speeds

Core experience

- 4+ years of software development
- Strong mathematical background
- Physics modelling (preferably optics and/or inverse problems)
- High performance computation and optimising software for parallel computing architectures

Desirable experience

- Imaging processing
- Parallel programming on hardware architectures such as GPUs or FPGAs
- Hardware drivers for USB
- Firmware development
- Cloud computing and simulation



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