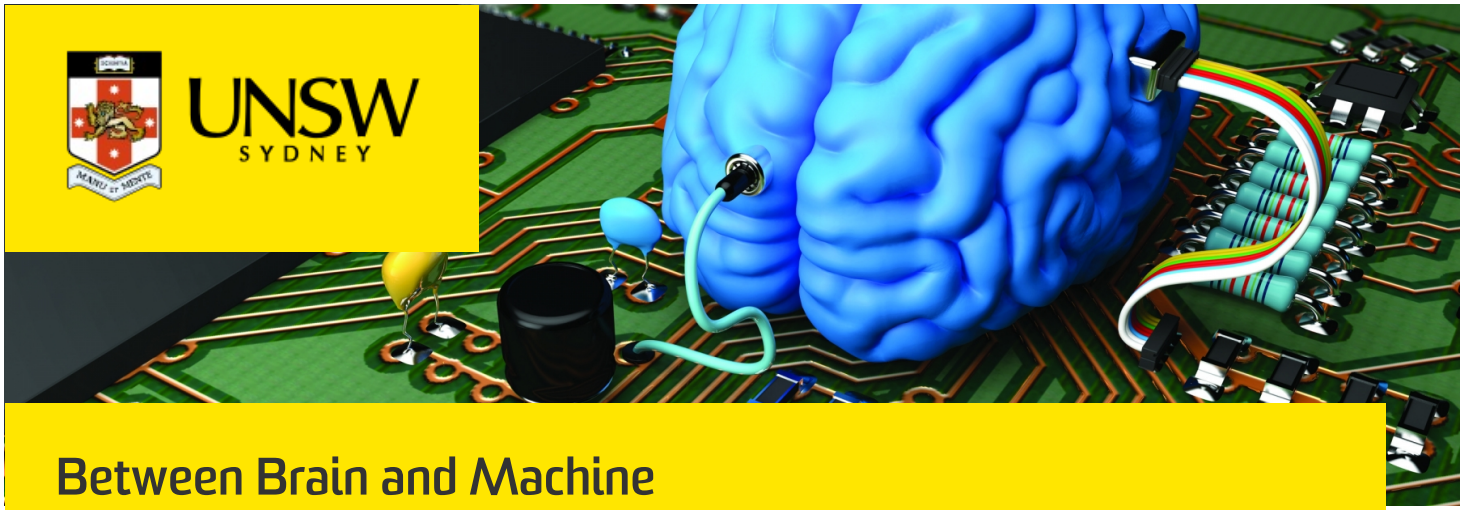

Between Brain and Machine

The development of the optrode array chip: a stepping stone towards the next generation of high-density, implantable brain/machine interface.

Competitive advantage

- Passively transducing the neural signals into the optical domain bypasses the problem of signal degradation and provides a scalable solution that could disrupt the way science thinks about brain/machine interfaces
- Unprecedented resolution, coverage and throughput
- Step-change in both clinical and research environments

Impact

- The best approach to brain/machine interfaces suffers from serious limitations, in that their signal/noise degrades as the density of electrodes increases. An embeddable, conformal optics chip will provide a step-change in both clinical and research environments and enable the control of machines through the brain or the enhancement of human abilities.

Successful outcomes

- Short-term: multi-optrode arrays (250 connections)
- Mid-term: prosthesis control (5000-10,000 connections)
- Long-term: machine control (1 million connections)

Capabilities and facilities

- Access to exhaustive nano-fabrication facilities at the Australian National Fabrication Facility (ANFF)
- Full 3D finite-elements model of all opto-electronics aspects completed
- Research team comprising 5 senior academics and a number of doctoral students

Our partners

- Zedelef Pty Ltd
- Preclinical testing facilities

More Information

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