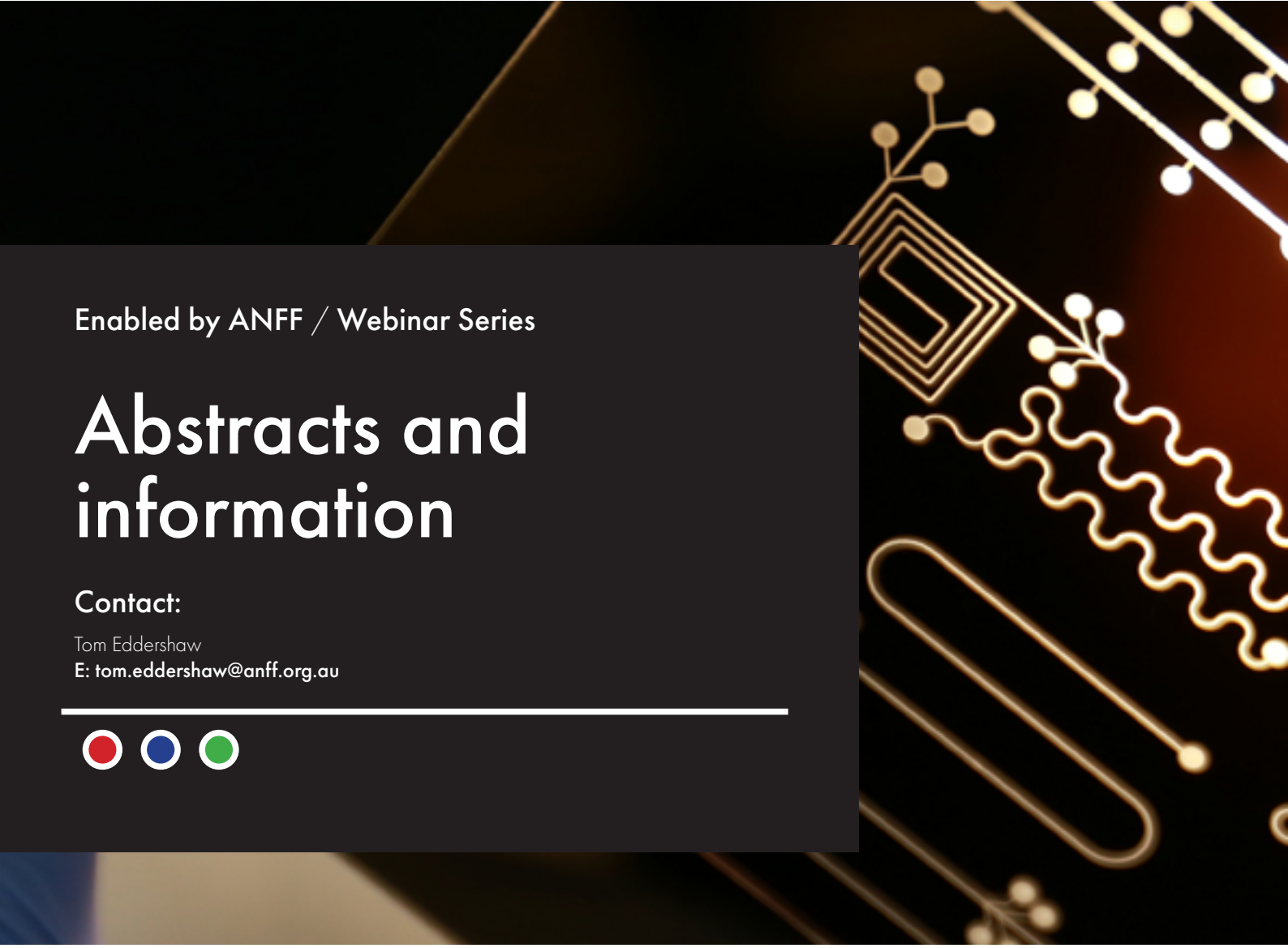

Enabled by ANFF / Webinar Series

Abstracts and information

Contact:

Tom Eddershaw
E: tom.eddershaw@anff.org.au

Starting in October, ANFF is hosting six free webinars to celebrate the exciting science being conducted with the assistance of the network.

We hope that you'll join us to hear about the exciting developments that ANFF has been enabling. Please find the talk abstracts below.

If you have not yet registered for the webinar series, please do so by clicking **this link**. This will ensure you receive the relevant information.

This webinar series has been introduced due to the situation in Melbourne making it unsafe for us to proceed in with the ANFF Retreat and Research Showcase in a responsibly safe fashion.

The "in person" part of the event, themed on the title *Enabled by ANFF*, will be held 11-13 May 2021 in Melbourne. More details to come.

If you have any questions, please contact **Tom Eddershaw**.

This event would not be possible without the support of our valued sponsors.

Event and Gala Dinner sponsor

Dynaflow

Event sponsors

AVT SERVICES · AXT · COLTRONICS · scitek · ThermoFisher SCIENTIFIC · Leica MICROSYSTEMS · ZEISS · NANOVACUUM · OLYMPUS

Six webinars will be held, with one focused on each of the following research priority areas.

~~Construction Science (21 October)~~

~~New and novel technologies to enhance construction materials and buildings of the future.~~

~~MedTech (28 October)~~

~~Developments in medical technologies that will help form Australia's economic future.~~

Space and Defence (4 November)

Furthering the technologies designed to aid space exploration, or to view Earth from high above.

Comms and Cybersecurity (11 November)

An overview of research that is improving the transmission or security of communication and data.

Energy (18 November)

Improving the energy outlook via new technologies or increasing the efficiencies of established ones.

Food and Agribusiness (25 November)

Uses of technology to improve the quality of food, or to help produce it.

Each online session will be one hour long and will feature two talks.

Enabled by ANFF / Webinar Series

Space and Defence

Speaker:

Associate Professor Craig Priest
UniSA and ANFF SA

Nanofabrication for out-of-this-world applications

Biography: Associate Professor Craig Priest is based at the Future Industries Institute (UniSA) and Director of the South Australian Node of the Australian National Fabrication Facility (ANFF-SA) – a $25M advanced manufacturing investment, located across UniSA and Flinders University. He oversees teams of research and professional staff working on interfacial, physical, and analytical science in micro/nanofluidic devices and other small scale environments for new sensing and manufacturing applications.

Craig was awarded SA Early Career Researcher of the Year in 2011, UniSA's Mid-career Researcher Award in 2020, has published > 100 papers and filed 13 patents. He has been awarded funding from ARC, AAS, NCRIS, State Government, and > 20 industry collaborators in mining, health, water/environment, and advanced manufacturing. He is currently Deputy Director of the ARC Industrial Transformation Research Hub for Integrated Devices for End-user Analysis at Low-levels.

Abstract: Associate Professor Craig Priest will present on some emerging opportunities for nano- and micro-fabricated devices in space applications, including a look at some of his own research interests and experiences. In 2014, Craig's space research "took off" with experiments on board a NASA microgravity flight with collaborators at the University of Puerto Rico. Now he's exploring projects aimed at using nano- and micro-fluidic phenomena in space flight and satellites, where hardware must be small, light, effective, reliable and efficient.

Craig will discuss how ANFF is helping launch space research in Australia and some of the pathways that provide support to those that are creating space-bound technologies. He will share his experience establishing a start-up supported by UniSA's ICC Venture Catalyst Space incubator, and how adventurous academics can use this non-traditional path to build networks, develop new skills, and test their assumptions in the real world (and beyond).

Enabled by ANFF / Webinar Series

Space and Defence

Speaker:

Ranjith R Unnithan
The University of Melbourne

Next generation flexible augmented reality based displays

Biography: Ranjith R Unnithan is a Research Group Leader and Senior Lecturer at the Department of Electrical and Electronic Engineering at University of Melbourne. He is also Director of Sensor Research at Hort-Eye Pty Ltd. His research areas span CMOS image sensors, AR displays, sensor electronics for biomedical applications (Miniscope and Lab-on-chip), drone based sensors and applications, multispectral thermal image cameras and nanophotonic engineering. Ranjith is in charge of state-of-the art electronics laboratory at Electrical Engineering, the University of Melbourne.

Abstract: Augmented Reality (AR) is an emerging technology that enables the seamless overlay of the real world with computer generated virtual images in such a way that the virtual content is aligned with real world objects. AR is now being targeted in a wide range of application domains, including education (interactive learning and teacher training), medicine (image guided surgery and surgical simulation), consumer products (head up displays for helmets and AR spectacles), industrial (architectural planning and object assembly), and entertainment (AR tourism and story telling).

Despite AR promising to provide breakthrough visual experience in numerous applications, it has failed to receive widespread adoption due to discomfort, eyestrain and cumbersome devices. This is mainly caused by the physical form of current AR devices, which require the viewer to look through thick cube reflectors, a limited field of view and an eye box that limit movement of the eyes and obstructs peripheral vision. This glass-based display technology demands micro-display and coupling optics to be integrated to the viewing glass on either side of the eyes and that makes the system bulky around the eyes in addition to blocking the side view. These shortcomings are primarily responsible for limited uptake of current AR glass technology.

In this talk, I will present a low cost flexible PDMS based flexible AR display technology to make AR spectacle to resembles normal spectacles with wide field of view, increased eye box and efficiency. This new technology will promote more widespread adoption of the AR glasses in different applications.