

## Faculty of Engineering

### Summer Research Program 2022-2023

Project Title: **Gold Nanowire Electronic Skins for Biosensing Applications**

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<https://scholar.google.com.au/citations?user=SSNXwlkAAAAJ&hl=en>

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#### Objective

In this summer project, a selected student will work with lab researchers to learn about fabrication of gold nanowire tattoos and apply them as hand gesture applications. The goal is to investigate key parameters such as size and shapes of gold tattoos and identify a few key signatures that may be used for interactive soft robotic sensing or bioprobng applications.

#### Project Details

Future electronics will evolve via a drive towards miniaturization, with a view to developing faster, softer, smaller, thinner and more integrated devices, which meet difficulties on rigid but brittle conventional semiconductor-based printed circuit boards. An alternative approach is to integrate the attributes of flexibility and stretchability to realize soft and human-friendly devices. Such soft materials could be exploited in the development of ultrathin and ultrasoft electronics that can be firmly attached to human skin like a tattoo, which is considered as the ultimate version of future wearable electronics.

In this context, the Monash Nanobionics lab has developed a powerful gold nanowire coating technologies enabling fabrication of skin-transferrable gold tattoo sensors that can identify multiple health-relevant parameters and wireless transmit data to a smart phone (see supporting information video in the web link below)

<https://onlinelibrary.wiley.com/doi/abs/10.1002/adma.201903789>

#### Additional Information

Applicants may be required to attend an interview