

## Student Internship Opportunities

There is an opportunity to work with/learn from an experienced team of science and engineering professionals on a diverse range of commercial green-fields R&D projects.

### Data Effects

Data Effects is a South Australian technology company that is committed to providing positive social, economic and environmental outcomes for Australian communities. We work closely with government and private industry on a diverse range of technology-focussed agricultural, environmental and peri-urban research and development projects. Data Effects specialises in project management, complex field data acquisition, development and deployment of real-time (IoT) sensing platforms, cloud data management, bespoke data communication/visualisation, machine learning, machine-to-machine communication and automated systems.

Data Effects provides a friendly, welcoming and dynamic environment to undertake your student internship. We are conveniently located in the heart of Adelaide on level 2, 51-53 Rundle Mall (opposite H&M).

### Project: Biosecurity - National Border Insect Biosecurity

We are looking for talented and enthusiastic postgraduate students from the following disciplines:

***Electronic and Mechatronic Engineering*** - Contribute to the design and construction of a new high-volume insect surveillance platform to conduct automated smart sampling at Australian controlled ports of entry (POE). Opportunities include:

- Device automation.
- Metadata acquisition.
- Logistics and data integration with established systems.
- PCB design and layout.
- Collaboration with software developers to facilitate appropriate embedded and edge software solutions.

***Mechanical and Aeronautical Engineering*** - Contribute to the design and testing of a new high-volume insect surveillance platform to conduct automated smart sampling at Australian controlled POE. Opportunities include:

- Aerodynamic design, modelling and testing.
- Product prototyping (3D printing and CAD).
- Collaboration with commercial and industrial designers to develop functional design solutions.

***Commercial and Industrial Design*** - Contribute to the industrial design of field-deployable, fully automated snail movement and environmental monitoring surveillance systems. Opportunities include:

- Product prototyping (3D printing and CAD).

- Design practical technology hardware solutions for field deployment (style, function, quality and safety).
- Work in collaboration with fabrication and design partners (e.g. [DAWE](#), [SARDI](#), [Rowland Metalworks](#)) to facilitate the manufacturer of commercial products.

## Project Summary

Develop and test a new high-volume insect surveillance platform to conduct automated smart sampling at controlled POE in collaboration with Australian border control.

The trap will comprise a relatively basic skeleton (Generation-1) that can be easily adapted to facilitate testing of different cutting-edge solutions for pest capture/surveillance, automation, logistics and secure data management. The trap will run continuously on a 240V power supply (mains power required) and will be self-supporting on three fold out legs. During operation, the trap will require sample pots to be manually changed every 24 hours. The trap will also include UVB light lures and chambers to house appropriate pheromone lures.

In collaboration with the Department of Agriculture, Water and the Environment (DAWE) and the South Australian Research and Development Institute (SARDI), there will be a program of continuous improvement and augmentation of the surveillance platform located at a DAWE facility in Port Adelaide. Improvements will be developed and trialled using sister traps located at Data Effects and the University of Adelaide. Testing will include:

- Air intakes (diameter and length)
- Sample pot exchange methods
- Device automation
- Metadata acquisition
- Logistics and data integration with established DAWE systems
- Air flow dynamics
- Light lures
- Pheromone lures