

# SUMMER RESEARCH 2024/25

## PROJECT ABSTRACT



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

### PROJECT # 64

<b>SUPERVISOR/S:</b>	Dr. Mitchell Head & Dr. Marcus Wilson
<b>PROJECT TITLE:</b>	Ngā waiata o te roro: Building a non-invasive brain stimulator
<b>FIELD:</b>	Electrical Engineering
<b>DIVISION/SCHOOL:</b>	Te Mata Punenga o Te Kotahi   Te Kotahi Research Institute (TKRI)
<b>PROJECT LOCATION:</b>	Hamilton

#### PROJECT ABSTRACT:

In this project, we aim to assemble function generator, oscilloscope, amplifier and transducer hardware, and set up appropriate waveforms for brain stimulation (duty cycle, pulse repetition period, pulse duration, pulse repetition frequency, and hydrophone testing).

#### STUDENT SKILLS:

- Experience with function generators, oscilloscopes, and amplifiers.
- Experience with setting up waveforms (duty cycle, pulse repetition period, pulse duration, pulse repetition frequency).
- An interest/previous experience with sound systems/acoustic physics is ideal.

#### PROJECT TASKS:

1. Task/deliverable: Assemble function generators, oscilloscope, amplifier and transducer hardware.
2. Task/deliverable: Set up appropriate waveforms for brain stimulation (duty cycle, pulse repetition period, pulse duration, pulse repetition frequency).
3. Task/deliverable: Complete hydrophone testing.
4. Task/deliverable: Develop presentation & poster.

#### EXPECTED OUTCOMES:

- Student's Research Poster (as per clause 6 of the [Scholarship regulations](#))
- Assemble function generators, oscilloscope, amplifier and transducer hardware
- Set up appropriate waveforms for brain stimulation (duty cycle, pulse repetition period, pulse duration, pulse repetition frequency).
- Produce presentation & poster.

