

# JAMAL SUMMERS

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## CURRENT SUMMARY

MSc. thesis focussed on mapping blind hydrothermal energy systems using UAVs and Satellites with infrared/ thermal optics. Recorded data involved soil CO<sub>2</sub> & temperature with surface temperature that was processed using my python analytical code. The thesis had a wide scope and forced me to get comfortable with a wide range of scientific disciplines: geology, electromagnetic physics, electrical engineering, biology, chemistry, environmental science, computer science and geographic information science.

## OBJECTIVE

Talented graduate looking to carve out a foothold in a progressive company. I am passionate in working with new technology and learning how to best use it for any project whether it be for resource exploration and resource development of hydrocarbons, mineral, ores, water etc. or disaster risk mitigation. Committed to learning resource exploration and the remediation of environmental issues of natural hazards and investigating past climate changes to forecast potential futures. Ultimately looking to progress into a leadership position that will test my skills and deliver value to an outstanding organization.

## EXPERIENCE

Masters thesis 1 year from 2019 to 2020.

Research topic: Assessing the potential application of remote sensing and field surveying in identifying blind low enthalpy geothermal systems in Harihari, New Zealand (2019).

Highlights of the study were:

- Designed flight paths and flew UAVs with IR and thermal cameras.
- Developed aerial mosaics of RGB photos, NDVI, thermal maps and videos.
- Created 3-D model of geothermal river system.
- Sample soil using Li-COR 820 CO<sub>2</sub> gas flux analyzer and thermometers.
- Used ArcGIS to create soil temperature and soil CO<sub>2</sub> maps.
- Developed a model using kriging analysis, ANOVA and probability.
- Used multispectral satellite imagery with UAV survey.
- Developed code in python to conduct the statistical analysis.
- Delivered a presentation and successfully defended my work.

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## EDUCATION

2019 - Master of Science with Honours (Geology) - University of Canterbury

2017 – PG DIP Science - UC

2016 - Bachelor of Science (Geology) - UC

2012 – Hillmorton Highschool

## SKILLS

ArcGIS

Python

MS Word / Excel

ENVI

Agisoft PRO

Leapfrog

Maps Made Easy

## MISCELLANEOUS – E.C.

General Executive for UCGS – University of Canterbury

Basketball Team Captain & Coach,

Musician (Guitars, piano, sound engineer)

## LANGUAGES

English

Spanish

Python

Music

Post Graduate Diploma Field Studies 2017, ~1 month total (2) during 2017

Mt. Ruapehu (Volcano), NZ - Kaikoura fault system, NZ

- Presented field research project: How does mineral alteration affect the compressive strength of rocks.
- Lab demonstrator.
- Teacher and marked exams/ reports.
- Field trip demonstrator: Developed a field test for the students.

GIS for Disaster Risk and Resilience field trip (1 week in 2017)

- Developed hazard models on flooding, landslides and ash fall for risk, through vector and raster spatial analysis.
- Delivered a presentation & report on disaster risk management.

Undergraduate Field Studies, 1-2 weeks each (4) between 2014-2016

Glens of Tokoa syncline valley, NZ - Westcoast Volcanics, NZ

Castle Rock, Canterbury, NZ - Otago Southern Formation, NZ

- Mapped and examined rock formations (structure, texture, composition) in the field.
- Wrote reports based on field data, previously published literature and thin sections to interpret regional geological history.
- Lab and field trip assistant/ marker.

## COURSES INCLUDED

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| • Mathematics  | • Active Tectonics and Geomorphology     |
| • Foundations of Engineering                           | • GIS for Geothermal and Ore Exploration |
| • GIS for Environmental Geohazards and Risk Management | • Engineering and Ore Mining Geology     |
| • Structural Geology and Global Geophysics             | • Coal and Petroleum Geoscience          |
| • Depositional Environments and Stratigraphy           | • Magmatic Systems and Volcanology       |

## PAST EMPLOYMENT

2019-20 - Lab Instructor, University of Canterbury, NZ

2019-20 – Sports referee and strength coach, NZ

2017-20 – Kitchen hand, Dubba Dubba, NZ

2017-19 - Primary School Volunteer Guitar Teacher, NZ

2015 - Lab Assistant, University of Canterbury, NZ