CIVIL ENGINEERING SUMMER BREAK RESEARCH SCHOLARSHIPS

The Summer Break Research Scholarship is available to interested enrolled 2nd, 3rd and 4th year undergraduate students of all faculties of the University of Sydney with a weighted average mark (WAM) of 75 or above, to undertake a research project with the School of Civil Engineering during the summer break of their studies.

Applicants must be currently enrolled (full time) with the University of Sydney and have successfully completed at least one year of their course prior to the commencement of the scholarship. Students must possess well developed skills in the areas of mathematics, physics, computing, environmental sciences and/or engineering.

Civil engineering students may use the experience gained from their research projects which will count for 6 weeks (out of 12) towards the requirements for professional experience component of ENGG4000.

The scholarship is valued at $6000 over a period of 12 weeks. The completion date will depend on individual agreements between the student and their supervisor regarding Christmas holidays etc., but not to be extended beyond 5 March 2018 (semester 1 start date). The scholarship amount will be paid in 2 instalments of $3000, with the 1st instalment being paid on commencement and the final payment being made upon project completion. Upon completion students are also required to submit a final report to their supervisor summarising their work and findings during the summer. Funds for the Summer-Break Scholarship Program are kindly provided by the J.W. and I.C.M. Roderick Research Fund.

**Decide about a potential project and supervisor:**

This is an important stage, which will make the difference between enjoying the research break or not. The selection process of the scholarship will be aimed at innovative scientific led engineering research, which we believe has a better chance of getting you excited.

You can propose your own individual research project by browsing the school’s website and initiate discussions with potential academic supervisors and get their approval. Only one student per project will be allowed.


Alternatively, please find a list of projects attached.

You are required to contact the corresponding academic(s) to learn more about the project and get their approval prior to submitting your application.

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**Closing date for all applications is Friday 27 October 2017**

**Results are available from Monday 6 November 2017**

(Start date of the project, if your application is successful, is Monday 4 December 2017).
School of Civil Engineering

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Alternatively, please find below a list of projects. You are required to contact the corresponding academic(s) to learn more about the project and get their approval.

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**Prof David Airey** ([david.airey@sydney.edu.au](mailto:david.airey@sydney.edu.au))

1. Using transparent soil to explore arching mechanism above a collapsing base layer
2. Response of unsaturated columns of soil to vibration

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**Dr Fernando Alonso-Marroquin** ([fernando.alonso@sydney.edu.au](mailto:fernando.alonso@sydney.edu.au))

1. Agent-based simulation of stock markets

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**Dr Mike Bambach** ([mike.bambach@sydney.edu.au](mailto:mike.bambach@sydney.edu.au))

1. 3D printing of structural sections using recycled plastic filament

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**Dr Kapil Chauhan** ([kapil.chauhan@sydney.edu.au](mailto:kapil.chauhan@sydney.edu.au))

1. Tracking air pollution using drone mounted sensors
2. Optimization of power output from wind turbine farms

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**Dr Kenneth Chung** ([ken.chung@sydney.edu.au](mailto:ken.chung@sydney.edu.au))

1. The hidden power of social networks in social learning and individual performance
2. How do leaders lead? Personalities, Personal Networks & Performance of Project Leaders & Program Directors

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**Prof Lynn Crawford** ([lynn.crawford@sydney.edu.au](mailto:lynn.crawford@sydney.edu.au))

1. The role of absorptive capacity in development of Organizational Project Mgmt Capability
2. Extending understanding of project based careers
Dr Daniel Dias-Da-Costa (daniel.diasdacosta@sydney.edu.au)
(a) Structural health monitoring
(b) Behavior of structures under ultimate loads

Prof Abbas El-Zein (abbas.el-zein@sydney.edu.au)
(a) Automated refereeing systems for soccer games
(b) How best to reduce traffic injuries?

Dr Ali Hadigheh (ali.hadigheh@sydney.edu.au)
(a) Interfacial behavior of FRP-concrete or timber connections
(b) Durability of FRP-strengthened infrastructures

Dr Chao Hou (chao.hou@sydney.edu.au)
(a) Prefabricated construction of innovative composite structural systems

Prof Kim Rasmussen (kim.rasmussen@sydney.edu.au)
(a) Three-dimensional analysis of cross-laminated timber decks based on a mixed elasticity formulation
(b) Numerical analysis of timber decks with intermediate cold-formed steel beams

A/Prof Chengwang Lei (chengwang.lei@sydney.edu.au)
(a) Promoting natural ventilation in buildings using solar thermal energy
(b) Improving thermal comfort in buildings using water wall

Prof David Levinson (david.levinson@sydney.edu.au)
(a) Programming traffic - Design for the behaviors of autonomous vehicles to optimize traffic flow
(b) Stationless bike sharing - Effects on mode choice

Dr Petr Matous (petr.matous@sydney.edu.au)
(a) Analyzing the role of social networks in international development projects – join fieldwork in Cambodia!
Dr Guien Miao (guien.miao@sydney.edu.au)
(a) Speed Scrabble & Particle Packing

Dr Ramil Nigmatullin (ramil.nigmatullin@sydney.edu.au)
(a) Dynamic phase transitions in swarming active matter
(b) Stochastic thermodynamics of non-equilibrium phase transitions

Prof Jianlei Niu (jianlei.niu@sydney.edu.au)
(a) Outdoor thermal comfort conditions in built-up precincts in warm climates
(b) Solar and thermal radiation at pedestrian level

Prof Kenny Kwok (kenny.kwok@sydney.edu.au)
(a) Numerical simulation of the atmospheric flow over terrains and the effect of wind loads on buildings
(b) Experiment and numerical validation of a flow structure in wind-fire interaction

A/Prof Julien Pollack (julien.pollack@sydney.edu.au)
(a) Does our perception of time affect how we manage projects?
(b) How much effort should we invest in relationship building at the start of projects?

A/Prof Gwénaëlle Proust (gwenaelle.proust@sydney.edu.au)
(a) Development and testing of new materials for 3D printing
(b) Development of titanium matrix composites for the mining industry

Dr Mohsen Ramezani (mohsen.ramezani@sydney.edu.au)
(a) Modelling and control of emerging taxi markets (e.g. Uber) in cities
(b) Analysing effect of autonomous vehicle disruptive technologies on traffic congestion

Prof Gianluca Ranzi (gianluca.ranzi@sydney.edu.au)
(a) Adaptive structural systems for high-performance buildings
Dr Pierre Rognon (pierre.rognon@sydney.edu.au)

(a) Designing the next generation of energy storage system for solar and wind farms
(b) Probing the earthquake response of granular soils

A/Prof Luming Shen (luming.shen@sydney.edu.au)

(a) Controlling the friction of fluid flow at solid surfaces (with Dr Kapil Chauhan)

Dr Louis Taborda (louis.taborda@sydney.edu.au)

(a) Projectification and the changing nature of work
(b) Project Management practitioner perceptions of research

Dr Shahadat Uddin (shahadat.uddin@sydney.edu.au)

(a) Understanding the evolutionary dynamics of longitudinal networks through the actor-level
dynamicity
(b) Predicting the scientific knowledge evolution of the Project Management research