



## SCHOLARSHIP DESCRIPTION

A PhD scholarship is available at the School of Civil Engineering, the University of Queensland (UQ), Australia (<http://www.civil.uq.edu.au>) to conduct a research project in the field of transportation engineering, with a particular focus on data mining and artificial intelligence applications in transportation. The overall goal of this research is to develop methods and tools for extracting useful information from data in transportation systems and using that information to solve diagnosis, prediction, and treatment problems related to urban traffic management and control. The outcomes of this research will be used in developing advanced decision support or expert systems that automate the process of extracting knowledge from large-scale, multi-source data and effectively support decision-making in both long-term planning and real-time operations at traffic management centres (TMCs).

The successful applicant will join Transport Group, School of Civil Engineering, UQ (Principal Advisor: Dr. Jiwon Kim) to work on a PhD project that addresses one of the following topics:

- Modelling uncertainty and causal dependencies in road networks using probabilistic graphical models and other machine learning algorithms
- Spatio-temporal traffic and travel pattern analysis using trajectory data from GPS devices (e.g., smartphones and in-vehicle navigation systems) or RFID tags (e.g., electronic fare cards and electronic toll collection systems)
- Modelling travel time reliability (e.g., developing novel travel time distribution models and developing algorithms to capture variability patterns in travel time data)

Other topics may be considered depending on the applicant's expertise and research interests.

## QUALIFICATIONS

We are looking for highly motivated candidates who have a strong interest in data science and multi-disciplinary, application-oriented research. The following items are required to be considered for this position:

- Master degree (or equivalent) in civil engineering, transportation engineering (transportation systems), computer science, information technology, applied statistics or a closely related area
- Solid background or good knowledge of probability theory, statistics, data mining and machine learning, computer programming
- Strong familiarity with scientific tools (Python, R, or MATLAB) and programming languages (C/C++ or C#)
- Excellent verbal and written communication skills in English

## SALARY AND APPOINTMENT

- **Payment:** The value of this scholarship is AUD 25,392 (minimum per annum, 2014 rate). This award is to be used for living allowance. This scholarship is paid fortnightly for the period of 3 years.
- **Commencement dates:** Between 5<sup>th</sup> January 2015 and 14<sup>th</sup> April 2015 (open to discussion)



## HOW TO APPLY

Interested individuals should submit the following items in a single pdf to Dr. Jiwon Kim ([jiwon.kim@uq.edu.au](mailto:jiwon.kim@uq.edu.au)):

- curriculum vitae;
- a brief statement about your research interests and experience (1-2 pages);
- a list of 3 referees with contact details including email address; and
- an electronic copy of your academic transcripts (undergraduate and postgraduate with English translations if in another language). This should include the grading scheme for the results (This is not required if you completed your degree/s at UQ).

The review of applications will begin November 1, 2014 and will continue until the position is filled. Early application is encouraged.

## APPROVAL AND ENROLMENT

The successful applicant will be formally invited to apply for a PhD, and will then need to submit the following documentation:

- Hardcopy of completed certified academic transcripts and official certification of degrees and diplomas awarded including certified English translations where required (unless qualifications are from the University of Queensland)
- Evidence of English proficiency, if required; the minimum scores for IELTS, TOEFL and Pearson Test are:

| IELTS Academic |                     | TOEFL – Paper based |                               |                     | TOEFL – Internet Based (iBT) |         |                               | Pearson Test  |                                   |
|----------------|---------------------|---------------------|-------------------------------|---------------------|------------------------------|---------|-------------------------------|---------------|-----------------------------------|
| Overall Score  | All other sub-bands | Total Score         | TWE (Test of written English) | Listening & Reading | Overall Score                | Writing | Speaking, Listening & Reading | Overall Score | Each communicative skills section |
| 6.5            | 6                   | 570                 | 5                             | 54                  | 87                           | 21      | 19                            | 64            | 60                                |

Tests expire after two years and must be valid at the time of your commencement of candidature.

- Certified documentary evidence of the duration and attendance status of any previous research higher degree enrolment. If the previous research higher degree enrolment was undertaken in Australia, students must also provide evidence of consumed research higher degree student load, measured in Equivalent Full-time Student Load (EFTSL).

The scholarships for the PhD degree are subject to academic approval, and the candidates will be enrolled in Research Higher Degree (RHD) programs at UQ - See more at: <http://www.uq.edu.au/grad-school/our-research-degrees>.

The University of Queensland (UQ) is in the top 100 universities worldwide, measured through a number of major independent university rankings: the Academic Ranking of World Universities, Times Higher Education World University Rankings, QS World University Rankings and, Performance Ranking of Scientific Papers for World Universities. UQ is also the largest university in Queensland. UQ is one of only three Australian members of the global [Universitas 21](#), a founding member of the [Group of Eight](#) (Go8) universities, and a member of [Universities Australia](#).

### For more information

Dr. Jiwon Kim

School of Civil Engineering, The University of Queensland

- Email: [jiwon.kim@uq.edu.au](mailto:jiwon.kim@uq.edu.au)
- School Profile: [www.civil.uq.edu.au/kim.jiwon](http://www.civil.uq.edu.au/kim.jiwon)
- UQ Researchers: <http://researchers.uq.edu.au/researcher/10269>



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