INTERNSHIP APPLICATION FORM

THE UNIVERSITY OF NEW SOUTH WALES

For 8-week internships starting mid-May (or later) in 2016 in the School of Civil and Environmental Engineering.

Completed application forms will be accepted between 11 January 2016 and 4 March 2016. Information on how to apply is at the end of this document.

Fields marked with an * are required fields and must be filled in.

PART 1 – PERSONAL DETAILS

First Name: *	Pankaj Kumar		
Last Name: *	Mukheja		
Date of Birth:	01/11/1994	**Gender:**	☐ Female ☒ Male
Email: *	pankaj.mukheja2012@gmail.com, pankaj.mukheja@iitb.ac.in		
Research area applying for:*	Travel demand modelling		

PART 2 – COURSE DETAILS

Current year: *	4th
School/Dept:	IIT Bombay/Civil Engineering
GPA and Rank: (out of)	7.85, Rank not given by the institute

Courses (Please briefly mention the courses undertaken related to the research area you are most interested in)

Course Name	Brief Description	Grade achieved
Analysis of Transportation System	Covers: Transportation innovations, social and economic impacts of transportation, demand modelling and predictions, Modelling transportation systems Analysis of network flows: Shortest-Path Problems, Maximum-flow Problems, Minimum-cost network flow problems, Minimum Spanning tree problem, The network simplex method with all Static Traffic Assignment methods.	**Not received now** **Currently undertaking**
Behavioural Travel Modelling	Covers: Binary choice models, multinomial and multi-dimensional choice models, issues in model specification, methods of model estimation with emphasis on MLE, aggregation and forecasting with discrete choice models, ordered multinomial models, nested logit models with advanced concepts such as accommodating unobserved population heterogeneity in choice behavior, mixed logit models, joint stated preference and revealed preference modeling, and longitudinal choice analysis; Also covers some part of discrete choice models for integrated land use and transport modelling.	**Not received now** **Currently undertaking**

Transportation Engineering II	Covers: Introduction to urban and regional transportation planning and model system; UTPP; Evaluation of Transportation Systems: Economic analysis; Financial analysis	9 out of 10
Projects (Briefly describe the projects you have undertaken to date)		
Project title	**Brief description**	**Grade achieved**
Estimating Vehicle location through crowd sourcing	**Research Project:** Proposed and implemented a new Particle Filter algorithm on GPS data and Formulated a **real time tracking algorithm** to precisely locate vehicle using **Sequential Monte Carlo** method; estimated the accurate position of vehicle using its variance in statistical parameters of real time **GPS** data from 3 mobile sources for 15 different routes; New algorithm works **21%** more accurate position with **less divergence** from crowd-source data; Wrote a paper on research and planning to send it to '**IET Intelligent Transport Systems**' journal for publishing	**Not a graded project**
Image Processing using Stochastic Methods	**Research Project:** Proposed and implemented a new non-linear thresholding technique for filtering the images using existing **Stochastic methods** for depreciating noise in image and improving its adaptiveness for multispectral images; Analyzed the performance of new technique on **Radar images** using various families of waveforms; analyzed the performance factors using various reference filters	**Not a graded project**

OTHER DETAILS	
GRE score (if available):	
TOEFL score (if available):	
Research Interests:	Travel demand modelling, Landuse Planning

PART 3 – REFEREES

You **must** provide the names and contact details of two referees. Each referee should provide a brief recommendation letter supporting your application, commenting especially on your <u>inclination</u> and <u>aptitude</u> towards research. The referee may send the letter to Associate Professor Adrian Russell directly or give it to you to include with your application.

REFEREE 1			
Name:	Nagendra R Velaga		
Position:	Assistant Professor		
Telephone:	+91 22 2576 7341	**Facsimile:**	
Email:	velaga@civil.iitb.ac.in		

REFEREE 2			
Name:	Dr. Avik Bhattacharya		
Position:	Associate Professor		
Telephone:	(91)-22-2576-7677	**Facsimile:**	

Email:	avikb@csre.iitb.ac.in

PART 4 – ATTACH BRIEF CV

* You must attach a brief copy of your resume demonstrating your past achievements and research interests in the area for which you are applying. Also attach a copy of your transcripts outlining your current grades.

IMPORTANT NOTES

- This application form should be used by undergraduate (Year 2+ or 3+) students potentially interested in pursuing PhDs later. Masters students and students who have completed 4+ years of study may also apply. **The parent institution for the student must be a research partner of UNSW** – see list of institutions at http://www.international.unsw.edu.au/outbound-exchanges/exchange-partners/.

- Details of the range of research activities in the School of Civil and Environmental Engineering can be found at our website http://www.engineering.unsw.edu.au/civil-engineering/

- **Applications will be accepted between 11 January 2016 and 4 March 2016.**

- Each application will be assessed on the basis of candidate's interest in research and recommendation letter from their supervisors.

- Each successful applicant will be awarded a stipend of AUD 1800 per month (or fraction thereof) which will be provided as a two-weekly allowance. Successful interns MUST bring with them sufficient money (about AUD 1000) to meet accommodation and living expenses as scholarship payment processing takes about 4 weeks.

- Candidates should arrange their own air fares, flights and visas.

- Advice on accommodation possibilities will be provided.

- The details of specific projects that are available will be released once the applications have been processed and offers made.

- For further enquiries, please contact Associate Professor Adrian Russell a.russell@unsw.edu.au