

# Ali Asghari

PhD Student of Engineering

The University of Melbourne

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## Introduction

Ali is a PhD candidate at the Infrastructure department at the University of Melbourne, Australia. Working within diverse industrial and academic environments, he has gained a wealth of technical and analytical expertise as well as teaching and academic skills. Having gained some experiences in surveying, spatial data science, machine learning and teaching in Geomatics as a multi-disciplinary area, he has capitalised to a great extent in data science, Geographic Information System (GIS) and geospatial analysis, Remote Sensing (RS) and Land Administration Systems (LAS) as well as university teaching and assisting students to progress in their studies. To expand his knowledge around 3D geospatial data science, he pursued a PhD in the Centre for Spatial Data Infrastructures and Land Administration (CSDILA) focusing on developing algorithms and methods for 3D spatial data validation. His research is one of the work packages of an ARC linkage project namely “3D Property Ownership Map Base for Smart Urban Land Administration” which is a collaborative project between CSDILA and Land Use Victoria, Intergovernmental Committee on Surveying and Mapping (ICSM) and City of Melbourne. This has consolidated his understanding of a range of 3D modelling techniques, 3D geospatial data science, Java and C++ programming, software development and 3D spatial data validation and analysis.

## Education

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<b>2018 - Present</b>	Doctor of Philosophy – Engineering, Infrastructure Engineering Department, School of Engineering, The University of Melbourne, Parkville, Victoria, Australia
<b>2013-2016</b>	Master’s Degree: Remote Sensing & Geographic Information System, Remote Sensing and GIS Department, Shahid Beheshti University, Tehran, Iran GPA: 19.41 out of 20
<b>2005-2009</b>	Bachelor’s Degree: Geomatics Engineering, Iran University of Science and Technology, Arak, Iran GPA: 16.18 out of 20
<b>2004</b>	Diploma: Mathematics and Physics, Tehran, Iran GPA: 19.23 out of 20

## Honour and Awards

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**Melbourne Research Scholarship** to undertake the Doctor of Philosophy – Engineering at The University of Melbourne, Australia (2018).

**The Rowden White Scholarship** to undertake the Doctor of Philosophy – Engineering at The University of Melbourne, Australia (2018).

**Melbourne School of Engineering Studentship** to undertake the Doctor of Philosophy – Engineering at The University of Melbourne, Australia (2018)

**Melbourne Studentship** to undertake the Doctor of Philosophy – Engineering at The University of Melbourne, Australia (2019)

**Iranian Science and Research Scholarship for B.E** (Tuition waiver; 2005-2009)  
**Rank 6329** in the Nationwide Bachelor's Program Admission Examination among 367,627 participants in Iran (2004).

**Graduation Certificate** for participation in the SSSI National Young Professionals Mentoring Program 2019 as a mentee.

**1<sup>st</sup> Ranked Student** during all Elementary, Intermediate and High school periods.

**5<sup>th</sup> Ranked Student** in bachelor's among 52 students.

**2<sup>nd</sup> Ranked Student** in master's among 12 students.

## Publications

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**Asghari, A.**, Kalantari, M. and Rajabifard, A., 2019. A structured framework for 3D cadastral data validation– a case study for Victoria, Australia. *Land Use Policy*, p.104359; <https://doi.org/10.1016/j.landusepol.2019.104359>

Shafizadeh-Moghadam, H., **Asghari, A.**, Taleai, M., Helbich, M. and Tayyebi, A., 2017. Sensitivity analysis and accuracy assessment of the land transformation model using cellular automata. *GIScience & Remote Sensing*, 54(5), pp.639-656. <https://doi.org/10.1080/15481603.2017.1309125>

Shafizadeh-Moghadam, H., **Asghari, A.**, Taleai, M., Helbich, M. and Tayyebi, A., 2017. Sensitivity analysis and accuracy assessment of the land transformation model using cellular automata. *GIScience & Remote Sensing*, 54(5), pp.639-656. <https://doi.org/10.1016/j.compenvurbsys.2017.04.002>

### **Submitted manuscripts (under review):**

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Asghari, A., Kalantari, M. and Rajabifard, A., 2020. Advancement in techniques to formulate 3D misclosure for cadastre. *Transaction in GIS*.

Shafizadeh-Moghadam, H., Minaei, M., Pontius, RG., Asghari, A., Dadashpour, H., 2020. Feature selection based Random Forest to simulate urban growth and ranking ephemeral urban drive. *International Journal of Geographical Information Science*.

### **Conference papers and presentations:**

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**Feb 2020** - ARC linkage 3D project seminar, 3D Cadastral Data Validation.

**Nov 2019** - Infrastructure Engineering Post Graduate Conference, The University of Melbourne, Australia. 3D Cadastral Data Validation,

<https://infrastructure.eng.unimelb.edu.au/people/abstracts/Ali-Asghari-2019.pdf>

### **Professional Service (Manuscript Reviewer)**

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*Transaction in GIS* journal (2 journal articles)

*Journal of Spatial Science* (2 journal articles)

### **Teaching Experiences**

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#### **The University of Melbourne, VIC, Australia:**

#### **May 2020 | Lecturer**

- Subject: *Engineering Site Characterisation*| Topic: Introduction to Surveying, Levelling, GIS and GPS

#### **Nov 2019 | Tutor/Instructor**

- Workshop: BIM & Modern Urban Land Administration Training Program| Topic: Data Quality

#### **Oct 2019 | Guest lecturer**

- Subject: *Land administration*| Topic: 3D cadastral data validation

#### **Jul 2019 – Nov 2019 | Tutor/Instructor**

- Subject: *Spatial Analysis*

#### **April 2019 – May 2019 | Lecturer**

- Subject: *Engineering Site Characterisation*| Topic: Introduction to Surveying, Levelling, GIS and GPS

#### **Aug 2018 | Tutor/Instructor**

- Subject: *Spatial Analysis*| Topic: Field analysis and interpolation techniques

**Shahid Beheshti University, Tehran, Iran:**

**December 2014 | Tutor/Instructor**

- Workshop: Interpretation of Satellite Images in Water and Soil Resources

**May 2014 | Tutor/Instructor**

- Workshop: Hydrology of Surface Water with an Emphasis on Iran

**K. N. Toosi University of Technology, Tehran, Iran**

**2017 | Tutor/Instructor**

- Subject: Geographic information system

**Islamic Azad University, Science and Research Branch, Tehran, Iran:**

**Nov 2016 – Jan 2017 | Tutor/Instructor**

- Subject: Geographic information system in environmental science

**Work experiences and collaboration with research projects**

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<b>Jan 2020 – Present</b>	The “Fishermans Bend Digital Twin” project
Postgraduate researcher	Sharing ideas and outcomes regarding 3D data validation to be implemented on digital twin platform
<b>Nov 2019 – Present</b>	ESD 2 Development Work - flooding project
3D geospatial data analyst	Converting 3D model data (OBJ) into 3D printable files, The University of Melbourne, Australia
<b>Apr 2018 – May 2018</b>	Malaysian 3D Cadastre project
Postgraduate researcher	Develop and implement a prototype 3D cadastral system for Malaysia.
<b>Feb 2018 – Present</b>	ARC linkage project “3D Property Ownership Map Base for Smart Urban Land Administration”
Postgraduate researcher	Validating single 3D property objects and the connectivity relationship of each 3D property object
<b>Sep 2014 – Sep 2017</b>	Surveying and mapping of infrastructure developments
Surveying Engineer	Petro Poulad Pars Company, Tehran, Iran

<b>May 2013-Sep 2014</b> Head of Surveying	4 Residential SkyScrapers Project HavaFaza Company, Tehran, Iran
<b>April 2012-Sep 2013</b> Surveying Engineer	Construction Project TakSamanHoor Company, Tehran, Iran
<b>Sep 2009- Oct 2010</b> Surveying Engineer	Tehran Metro Line 4 (Underground developments for metro) International Energy and Management Processing Company, Tehran, Iran

### **Skills and Expertise**

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- Java, JOGL and C++ programing with a tendency towards the computational geometry algorithms
- Professional work experience with 3D geospatial data software including Autodesk Revit, Solibri Model Viewer, Autodesk Netfabb Premium, TinkerCad and Meshmixer
- Professional work experience with geospatial data software including ArcGIS, QGIS, ENVI and ERDAS Imagine.
- R programming (With tendency in spatial statistics and machine learning)
- MATLAB programming
- Python programming (With a a good experience using ArcPy site-package in ArcGIS software)
- Spatial databases management PostgreSQL and SQL server
- Work experience with data mining software including KEEL and WEKA
- Professional work experience with civil and surveying software including AutoCAD, Surfer and Civil3D Land Desktop

### **References**

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#### **Associate Professor Mohsen kalantari,**

Department of Infrastructure Engineering, School of Engineering, The University of Melbourne, VIC 3010, Australia

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#### **Professor Abbas Rajabifard,**

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