

DR DAVOOD SHOJAEI

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CAREER OVERVIEW

As a senior lecturer at the University of Melbourne, I have a well-developed background in Geospatial Information Systems (GIS), urban land administration, land surveying and 3D visualisation. During the past 15 years, I have been involved in many projects in different organisations as a project manager, consultant or researcher. My area of research includes 3D cadastre, land administration, 3D visualisation, Building Information Modelling (BIM) and Digital Twin.

Key Strengths

- Significant experience in research and teaching;
- More than eight years of experience in project management and spatial consultancy, leading to well-developed skills in preparing, coordinating, conducting and assessing spatial projects;

EDUCATION AND QUALIFICATIONS

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| 2010 - 2014 | PhD - Urban Land Administration (Geomatics) <i>Centre for Spatial Data Infrastructures & Land Administration, Department of Infrastructure Engineering, the University of Melbourne, Australia</i> Research Topic: 3D Cadastre Visualisation |
| 2003 - 2006 | Master of Science - Surveying Engineering (Photogrammetry) <i>Faculty of Geomatics Eng. KNT University of Technology, Tehran, Iran</i> Research Topic: Optimisation of Delaunay Triangulation for Terrain Modelling |
| 1999 - 2003 | Bachelor of Science - Surveying Engineering <i>Geomatics Dept., Tabriz University, Tabriz, Iran</i> |

TEACHING EXPERIENCE

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| Since 2019 | Senior Lecturer The University of Melbourne Subjects: Surveying and Mapping, Information Visualisation |
| Since 2014 | Invited Lecturer The University of Melbourne Subjects: Spatial Data Infrastructures (SDI), Land Development |
| 2011-2014 | Coordinator, Lecturer and Tutor The University of Melbourne Subjects: Spatial Data Infrastructures (SDI), Sustainable Infrastructures Systems (SIS), and Engineering Site Characterisation. |
| 2004 - 2008 | Part-time Lecturer KNT University of Technology, Azad University Ghazvin Branch, Azad University Maybod Branch, Maybod Technical & Vocational Training Organisation, Azad University Khomeini Shahr Branch, Azad University Najafabad Branch Subjects: GIS, Land Surveying, Software and Surveying Instruments, Photogrammetry, and Cartography. |

WORK EXPERIENCE

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| Mar 2020 - Jun 2022 | Job title: Board Member of the Surveying Taskforce Organisation: The Surveying Taskforce |
| Since Nov 2019 | Job title: Board Member of the Surveyors Registration Board of Victoria (SRBV) Organisation: The Surveyors Registration Board of Victoria |
| Since Aug 2019 | Job title: Senior Lecturer Organisation: The University of Melbourne Duties and Responsibilities: <ul style="list-style-type: none">• Teaching Geomatics subjects• Supervising students in PhD and MSc degree• Collaborating on various research and practical projects• Preparing research proposals• Helping in administrative duties in the department |

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| Jun 2014 - Aug 2019 | Job title: 3D specialist Organisation: Land Use Victoria, Department of Environment, Land, Water & Planning Level 9, 2 Lonsdale Street, Melbourne, T: 03 9194 0533 Duties and Responsibilities: <ul style="list-style-type: none"> • Leading 3D Digital Cadastre Research • Implementing and enhancing the ePlan services |
| Oct 2010 - Jun 2014 | Job title: PhD Candidate Organisation: Centre for Spatial Data Infrastructures & Land Administration, the University of Melbourne Duties and Responsibilities: <ul style="list-style-type: none"> • Investigating 3D Digital Cadastre Visualisation • Lecturing and Tutoring |
| Mar 2010 - Sep 2010 | Job title: PhD Candidate Organisation: ITC, Twente University, the Netherlands Duties and Responsibilities: <ul style="list-style-type: none"> • Processing LiDAR and MLS point clouds for DTM creation |
| Feb 2007 - Feb 2010 | Job title: Project Manager (Spatial Data Manager) Organisation: Statistics, Information and Communication Technology of Isfahan Municipality Duties and Responsibilities: <p>Project manager of the following main projects:</p> <ul style="list-style-type: none"> • Implementing Spatial Data Infrastructures of Isfahan Municipality. • Designing a Methodology for Urban Map Updating Using Aerial and Satellite Images. • GIS strategy of Isfahan Municipality. • Implementing a Spatial Database of Isfahan Municipality. • GIS-Ready of Isfahan Municipality Maps. <p>Consultant in the following main projects:</p> <ul style="list-style-type: none"> • Developing a WebGIS system for Isfahan Municipality. • Developing an Automatic Vehicle Location for Isfahan Bus Driving System. • Using GIS in Firefighting System of Isfahan Municipality. <p>Achievements:</p> <ul style="list-style-type: none"> • Budget management for various projects (up to \$400,000). • Improved the map updating process in Isfahan municipality. • Spatial enablement of Isfahan municipality. • Projects completed by the deadlines. |
| Feb 2006 - Feb 2007 | Job title: Manager of GIS Section (Project Manager) Organisation: Afraz Naghshe Aria consulting Eng. Co. Duties and Responsibilities: <p>Project manager of the following main projects:</p> <ul style="list-style-type: none"> • Compiling the 1:2000 cadastre map of Palesjan River and establishing GIS. • Compiling the 1:200 maps in Abarkou villages and establishing GIS. • Compiling the 1:2000 map of Zavareh city. • Compiling the 1:2000 map of Ardestan city. |

PUBLICATIONS

Journal Papers

1. **Shojaei, D.**, Jafary, P. & Zhang, Z. 2024. Mixed Reality-Based Concrete Crack Detection and Skeleton Extraction Using Deep Learning and Image Processing. *Electronics*, 13(22), 4426, doi: <https://doi.org/10.3390/electronics13224426>.
2. Abdul Muthalif, M.Z., **Shojaei, D.** & Khoshelham, K. 2024. Interactive Mixed Reality Methods for Visualization of Underground Utilities. *PFG – Journal of Photogrammetry, Remote Sensing and Geoinformation Science*, doi: <https://doi.org/10.1007/s41064-024-00295-x>.
3. Jafary, P., **Shojaei, D.**, Rajabifard, A. & Ngo, T. 2024. Automated land valuation models: A comparative study of four machine learning and deep learning methods based on a comprehensive range of influential factors. *Cities*, 151, 105115, doi: <https://doi.org/10.1016/j.cities.2024.105115>.
4. Jafary, P., **Shojaei, D.**, Rajabifard, A. & Ngo, T. 2024. Automating property valuation at the macro scale of suburban level: A multi-step method based on spatial imputation techniques, machine learning and deep learning. *Habitat International*, 148, 103075, doi: <https://doi.org/10.1016/j.habitatint.2024.103075>.
5. Adibi, S., Rajabifard, A., **Shojaei, D.** & Wickramasinghe, N. 2024. Enhancing Healthcare through Sensor-Enabled Digital Twins in Smart Environments: A Comprehensive Analysis. *Sensors* 2024, 24, doi:10.3390/s24092793.

6. Jafary, P., **Shojaei, D.**, Rajabifard, A. & Ngo, T. 2024. BIM and real estate valuation: challenges, potentials and lessons for future directions. *Engineering, Construction and Architectural Management*, 31, 4, 1642-1677, doi:[10.1108/ECAM-07-2022-0642](https://doi.org/10.1108/ECAM-07-2022-0642).
7. Emamgholian, S., Pouliot, J. & **Shojaei, D.** 2024. A conceptual framework for automatic modelling and conflict detection of 3D land-use regulation restrictions to support issuing planning permits. *Land Use Policy*, 137, 106972, doi:<https://doi.org/10.1016/j.landusepol.2023.106972>.
8. **Shojaei, D.**, Badiiee, F., Olfat, H., Rajabifard, A. & Atazadeh, B. 2023. Requirements of a data storage infrastructure for effective land administration systems: case study of Victoria, Australia. *Journal of Spatial Science*, 68, 3, 431-449, doi:<https://doi.org/10.1080/14498596.2022.2027291>.
9. Han, T., **Shojaei, D.**, Fitzpatrick, P., Sakurai, T. & Evans, J. 2023. Urban 5G MmWave networks: Line-of-sight probabilities and optimal site locations. *Journal of Telecommunications and the Digital Economy*, 11, 1, 107-130, doi:<https://doi.org/10.18080/jtde.v11n1.640>.
10. Burns, A.F., Rajabifard, A. & **Shojaei, D.** 2023. Undertaking land administration reform: Is there a better way? *Land Use Policy*, 132, 106824, doi:<https://doi.org/10.1016/j.landusepol.2023.106824>.
11. Muthalif, M.Z.A., **Shojaei, D.** & Khoshelham, K. 2022. A review of augmented reality visualization methods for subsurface utilities. *Advanced Engineering Informatics*, 51, 101498, doi:<https://doi.org/10.1016/j.aei.2021.101498>.
12. Rajabifard, A., Atazadeh, B., Kalantari, M., Olfat, H., **Shojaei, D.** & Badiiee, F. 2021. Design and development of an LADM-driven 3D Land administration system: Lessons learned in Malaysia. *Land Use Policy*, 102, 105252, doi:<https://doi.org/10.1016/j.landusepol.2020.105252>.
13. Olfat, H., Atazadeh, B., Badiiee, F., Chen, Y., **Shojaei, D.** & Rajabifard, A. 2021. A Proposal for Streamlining 3D Digital Cadastral Data Lifecycle. *Land*, 10, 6, 642, doi:<https://doi.org/10.3390/land10060642>.
14. Faraji, M., Nadi, S. & **Shojaei, D.** 2021. Spatial-Temporal Prediction of PM2. 5 Pollutants Using Deep Recurrent Networks: A Case Study of Tehran. *Journal of Geomatics Science and Technology*, 10, 3, 13-26.
15. Emamgholian, S., Taleai, M. & **Shojaei, D.** 2021. Exploring the applications of 3D proximity analysis in a 3D digital cadastre. *Geo-spatial Information Science*, 24, 2, 201-214, doi:<https://doi.org/10.1080/10095020.2020.1780956>.
16. Atazadeh, B., Olfat, H., Rajabifard, A., Kalantari, M., **Shojaei, D.** & Marjani, A.M. 2021. Linking Land Administration Domain Model and BIM environment for 3D digital cadastre in multi-storey buildings. *Land Use Policy*, 104, 105367, doi:<https://doi.org/10.1016/j.landusepol.2021.105367>.
17. Atazadeh, B., Halalkhor Mirkalaei, L., Olfat, H., Rajabifard, A. & **Shojaei, D.** 2021. Integration of cadastral survey data into building information models. *Geo-spatial Information Science*, 24, 3, 387-402, doi:<https://doi.org/10.1080/10095020.2021.1937336>.
18. Olfat, H., Atazadeh, B., Rajabifard, A., Mesbah, A., Badiiee, F., Chen, Y., **Shojaei, D.** & Briffa, M. 2020. Moving Towards a Single Smart Cadastral Platform in Victoria, Australia. *ISPRS International Journal of Geo-Information*, 9, 5, 303, doi:<https://doi.org/10.3390/ijgi9050303>.
19. Nadi, S., **Shojaei, D.** & Ghiasi, Y. 2020. Accuracy Assessment of DEMs in Different Topographic Complexity Based on an Optimum Number of GCP Formulation and Error Propagation Analysis. *Journal of Surveying Engineering*, 146, 1, 04019019, doi:[https://doi.org/10.1061/\(ASCE\)SU.1943-5428.0000296](https://doi.org/10.1061/(ASCE)SU.1943-5428.0000296).
20. Olfat, H., Jani, A., **Shojaei, D.**, Darvill, A., Briffa, M., Rajabifard, A. & Badiiee, F. 2019. Tackling the challenges of visualising digital cadastral plans: The Victorian cadastre experience. *Land Use Policy*, 83, 84-94, doi:<https://doi.org/10.1016/j.landusepol.2019.01.037>.
21. Olfat, H., Atazadeh, B., **Shojaei, D.** & Rajabifard, A. 2019. The Feasibility of a BIM-Driven Approach to Support Building Subdivision Workflows—Case Study of Victoria, Australia. *ISPRS International Journal of Geo-Information*, 8, 11, 499, doi:<https://doi.org/10.3390/ijgi8110499>.
22. Atazadeh, B., Olfat, H., Rismanchi, B., **Shojaei, D.** & Rajabifard, A. 2019. Utilizing a Building Information Modelling Environment to Communicate the Legal Ownership of Internet of Things-Generated Data in Multi-Owned Buildings. *Electronics*, 8, 11, 1258, doi:<https://doi.org/10.3390/electronics8111258>.
23. **Shojaei, D.**, Olfat, H., Rajabifard, A. & Briffa, M. 2018. Design and Development of a 3D Digital Cadastre Visualization Prototype. *ISPRS International Journal of Geo-Information*, 7, 10, 384, doi:<https://doi.org/10.3390/ijgi7100384>.
24. Olfat, H., **Shojaei, D.**, Briffa, M., Maley, S. & Rajabifard, A. 2018. Strategic Actions for Increasing the Submission of Digital Cadastral Data by the Surveying Industry Based on Lessons Learned from Victoria, Australia. *ISPRS International Journal of Geo-Information*, 7, 2, 47, doi:<https://doi.org/10.3390/ijgi7020047>.
25. **Shojaei, D.**, Olfat, H., Quinones Faundez, S.I., Kalantari, M., Rajabifard, A. & Briffa, M. 2017. Geometrical data validation in 3D digital cadastre – A case study for Victoria, Australia. *Land Use Policy*, 68, 638-648, doi:<https://doi.org/10.1016/j.landusepol.2017.08.031>.

26. **Shojaei, D.**, Olfat, H., Rajabifard, A., Darvill, A. & Briffa, M. 2016. Assessment of the Australian digital cadastre protocol (ePlan) in terms of supporting 3D building subdivisions. *Land Use Policy*, 56, 112-124, doi:<https://doi.org/10.1016/j.landusepol.2016.05.002>.
27. **Shojaei, D.**, Rajabifard, A., Kalantari, M., Bishop, I.D. & Aien, A. 2015. Design and development of a web-based 3D cadastral visualisation prototype. *International Journal of Digital Earth*, 8, 7, 538-557, doi:<https://doi.org/10.1080/17538947.2014.902512>.
28. Aien, A., Rajabifard, A., Kalantari, M. & **Shojaei, D.** 2015. Integrating Legal and Physical Dimensions of Urban Environments. *ISPRS International Journal of Geo-Information*, 4, 3, 1442-1479, doi:<https://doi.org/10.3390/ijgi4031442>.
29. **Shojaei, D.**, Kalantari, M., Bishop, I.D., Rajabifard, A. & Aien, A. 2013. Visualization requirements for 3D cadastral systems. *Computers, Environment and Urban Systems*, 41, 39-54, doi:<https://doi.org/10.1016/j.compenvurbsys.2013.04.003>.

Peer-Reviewed Conference Papers

1. Jafary, P., **Shojaei, D.**, Pishgahi, S., Rajabifard, A. & Ngo, T. 2024. Data-driven Strategies for Affordable Housing: A Hybrid Genetic Algorithm-Machine Learning Optimization Model in the Melbourne Metropolitan Area. *ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, X-4-2024, 175-182, doi:<https://doi.org/10.5194/isprs-annals-X-4-2024-175-2024>.
2. Meliana, I., Hajji, R. & **Shojaei, D.** 2024. Exploring Spatial Interaction and Visualization Paradigms for 3D Cadastral Visualization. *ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, X-4/W5-2024, 237-246, doi:<https://doi.org/10.5194/isprs-annals-X-4-W5-2024-237-2024>.
3. Zhang, Z., Khoshelham, K. & **Shojaei, D.** 2024. Pole-NN: Few-Shot Classification of Pole-Like Objects in Lidar Point Clouds. *ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, X-4/W5-2024, 333-340, doi:<https://doi.org/10.5194/isprs-annals-X-4-W5-2024-333-2024>.
4. Tanfield, K., Heywood, C., Warren-Myers, G., Kalantari, M. & **Shojaei, D.** 2023. ISO 19650.3 and the digitisation of operations in strata-titled residential apartment developments. In *Proceedings of the IOP Conference Series: Earth and Environmental Science*, 2023; p. 012020, doi:<https://doi.org/10.1088/1755-1315/1176/1/012020>.
5. Muthalif, M.Z.A., **Shojaei, D.** & Khoshelham, K. 2022. Resolving Perceptual Challenges of Visualizing Underground Utilities in Mixed Reality. In *Proceedings of the Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2022; pp. 101-108, doi:<https://doi.org/10.5194/isprs-archives-XLVIII-4-W4-2022-101-2022>.
6. Jafary, P., **Shojaei, D.**, Rajabifard, A. & Ngo, T. 2022. A Framework to Integrate BIM with Artificial Intelligence and Machine Learning-based Property Valuation Methods. In *Proceedings of the ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2022; pp. 129-136, doi:<https://doi.org/10.5194/isprs-annals-X-4-W2-2022-129-2022>.
7. Emamgholian, S., Pouliot, J., **Shojaei, D.** & Losier, L.M. 2022. A Web-Based Planning Permit Assessment Prototype: iTwin4PP. In *Proceedings of the Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2022; pp. 37-44, doi:<https://doi.org/10.5194/isprs-archives-XLVIII-4-W4-2022-37-2022>.
8. Emamgholian, S., Pouliot, J. & **Shojaei, D.** 2021. 3D Zoning: A Missing Piece to Link Planning Regulations with 3D Cadastre. In *Proceedings of the 7th International FIG Workshop on 3D Cadastres*, New York, United States, 2021, doi:<https://doi.org/10.4233/uuid:ec641882-0040-456d-a101-f641aa5c70d9>.
9. Emamgholian, S., Pouliot, J. & **Shojaei, D.** 2021. 3D CITYLUR: Modelling 3D City Land-Use Regulations to Support Issuing a Planning Permit. In *Proceedings of the ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2021; pp. 113-120, doi:<https://doi.org/10.5194/isprs-annals-VIII-4-W2-2021-113-2021>.
10. Emamgholian, S., Pouliot, J. & **Shojaei, D.** 2020. Modelling Land-Use Regulation Conflicts with 3D Components to Support Issuing a Building Permit. In *Proceedings of the Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2020; pp. 41-48, doi:<https://doi.org/10.5194/isprs-archives-XLIV-4-W1-2020-41-2020>.
11. **Shojaei, D.**, Olfat, H., Aien, A., Nimorakiotakis, N. & Rajabifard, A. 2019. Utilising Virtual and Augmented Reality Technologies to Improve the Visualisation of Digital Cadastre—The Victorian Cadastre Experience. In *Proceedings of the 3D Geoinfo 2019 Conference - 2nd International IAG Workshop on BIM and GIS integration*, Singapore, 24-27 September 2019, 2019.
12. Rajabifard, A., Atazadeh, B., Yip, K.M., Kalantari, M., Anaraki, M.R., Olfat, H., Badiee, F., **Shojaei, D.**, Lim, C.K. & Zain, M.A.M. 2019. Design and Implementation of a 3D National Digital Cadastral Database based on Land Administration Domain Model. In *Proceedings of the 8th Land Administration Domain Model Workshop (LADM2019)*, Kuala Lumpur, Malaysia, 2019, doi:<https://doi.org/10.4233/uuid:bf155fd1-ecb7-43d6-bc55-04cbf8c248c7>.

13. **Shojaei, D.**, Olfat, H., Rajabifard, A., Kalantari, M. & Briffa, M. 2018. Moving Towards a Fully Operational 3D Digital Cadastre: Victoria, Australia. In *Proceedings of the 6th International FIG Workshop on 3D Cadastres*, Delft, Netherlands, 2018, doi:<http://resolver.tudelft.nl/uuid:7582e08d-44e4-49b4-aaef-fea150cf56a5>.
14. Rajabifard, A., Agunbiade, M., Kalantari, M., Yip, K.M., Atazadeh, B., Badiie, F., Isa, D.M.N.B., Adimin, M.K.B., Chan, K.L., Aien, A., Olfat, H., **Shojaei, D.** & Anaraki, M.R. 2018. An LADM-based Approach for Developing and Implementing a National 3D Cadastre – A Case Study of Malaysia. In *Proceedings of the 7th Land Administration Domain Model Workshop (LADM2018)*, Zagreb, Croatia, 2018, doi:<https://doi.org/10.4233/uuid:6a337aa8-38bc-4505-855e-fcea28377294>.
15. Olfat, H., **Shojaei, D.**, Rajabifard, A. & Briffa, M. 2018. An overview of the Victorian 3D Digital Cadastre Roadmap. In *Proceedings of the International Symposium on A Smart Sustainable Future for All – Enhancing Resilience in a Changing Landscape*, The University of Melbourne, Australia, 24-26 September 2018, 2018, doi:<https://rest.neptune-prod.its.unimelb.edu.au/server/api/core/bitstreams/194531ae-be28-5d01-ad0a-59256927140e/content>.
16. **Shojaei, D.**, Olfat, H., Briffa, M. & Rajabifard, A. 2017. 3D Digital Cadastre Journey in Victoria, Australia. In *Proceedings of the ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2017; pp. 117-123, doi:<https://doi.org/10.5194/isprs-annals-IV-4-W5-117-2017>.
17. Olfat, H., **Shojaei, D.**, Briffa, M. & Rajabifard, A. 2017. The Current Status and Ongoing Investigations of 2D and 3D Digital Cadastre (ePlan) in Victoria, Australia. In *Proceedings of the 10th International Symposium on Digital Earth & Locate17*, Sydney, Australia, 3-6 April 2017, 2017, doi:http://ceur-ws.org/Vol-1913/RL17_paper_3.pdf.
18. Emamgholian, S., Taleai, M. & **Shojaei, D.** 2017. A Novel Approach for 3D Neighbourhood Analysis. In *Proceedings of the Int. Arch. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2017; pp. 361-365, doi:<https://doi.org/10.5194/isprs-archives-XLII-2-W7-361-2017>.
19. Aien, A., Rajabifard, A., Kalantari, M., Williamson, I. & **Shojaei, D.** 2017. Review and Assessment of Current Cadastral Data Models for 3D Cadastral Applications. In *Proceedings of the Advances in 3D Geoinformation*, Cham, 2017//, 2017; pp. 423-442, doi:https://doi.org/10.1007/978-3-319-25691-7_24.
20. Olfat, H., **Shojaei, D.** & Briffa, M. 2016. The Victorian Digital Cadastre: Challenges and Investigations. In *Proceedings of the 3rd Annual Conference of Research@Locate*, Melbourne, Australia, 2016; pp. 47-52, doi:<http://ceur-ws.org/Vol-1570/paper05.pdf>.
21. Rajabifard, A., Williamson, I., Marwick, B., Kalantari, M., Ho, S., **Shojaei, D.**, Atazadeh, B., Amirebrahimi, S. & Jamshidi, A. 2014. 3D-cadastre, a multifaceted challenge. In *Proceedings of the FIG Congress 2014–Engaging the Challenges, Enhancing the Relevance*, Kuala Lumpur, Malaysia, 16-21 June 2014 2014, doi:https://www.fig.net/resources/proceedings/2014/2014_3dcadastre/3Dcad_2014_02.pdf.pdf.
22. Aien, A., Rajabifard, A., Kalantari, M., Williamson, I. & **Shojaei, D.** 2014. Development of XML Schemas for Implementation of a 3D Cadastral Data Model. In *Proceedings of the 4th International FIG 3D Cadastre Workshop*, Dubai, United Arab Emirates, 2014, doi:<http://resolver.tudelft.nl/uuid:956aff32-d9ea-4f60-a959-1a0ca6dbc476>.
23. **Shojaei, D.**, Rajabifard, A., Kalantari, M., Bishop, I. & Aien, A. 2012. Development of a 3D ePlan/LandXML visualisation system in Australia. In *Proceedings of the 3rd International Workshop on 3D Cadastres: Developments and Practices*, Shenzhen, China 25-26 October 2012, 2012, doi:https://www.fig.net/resources/proceedings/2012/2012_3dcadastre/3Dcad_2012_46.pdf.
24. Aien, A., Kalantari, M., Rajabifard, A., Williamson, I.P. & **Shojaei, D.** 2012. Developing and Testing A 3D Cadastral Data Model A Case Study in Australia. In *Proceedings of the ISPRS Ann. Photogramm. Remote Sens. Spatial Inf. Sci.*, 2012; pp. 1-6, doi:<https://doi.org/10.5194/isprsannals-I-4-1-2012>.
25. Adili, E., Golestannejad, A., Heidarian, V., Amini, M., Sadeghi, M., **Shojaei, D.** & Rajabifard, A. 2010. Spatially Enabling Isfahan Metropolis through Local SDI. In *Proceedings of the GSDI 12 World Conference*, Singapore, 2010.
26. **Shojaei, D.** & Atae, S. 2007. Using of Panorama Images in Developing of Tourism Industry. In *Proceedings of the ICT and Development of Tourism Industry Conference*, Isfahan, Iran, 2007.
27. **Shojaei, D.** 2006. Triangulation for surface modelling. In *Proceedings of the Ninth International Symposium on the 3-D Analysis of Human Movement*, Valenciennes, France, 2006, <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=f8f6af71287d891d882e03550aaf6282d903557b>.
28. Hamrah, M., **Shojaei, D.** & Mosavi, A. 2006. Evaluation of DTM Generation in Surfer 8.0. In *Proceedings of the Map India 2006*, New Delhi, India, 2006, <https://people.eng.unimelb.edu.au/shojaeid/Publications/Evaluation%20of%20DTM%20Generation%20in%20SURFER%208.0.pdf>.

29. Varshosaz, M., Helali, H. & **Shojaei, D.** 2005. The Methods of Triangulation. In *Proceedings of the Map Middle East 2005, 1st Annual Middle East Conference and Exhibition on Geospatial Information, Technology and Applications*, Dubai, UAE, 2005, <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=29ffb66eafee0b6d1d6fcb9a96b59ea98262a1b7>.
30. Varshosaz, M., Helali, H. & **Shojaei, D.** 2005. Evaluation the Methods of Triangulation and Effective Parameters. In *Proceedings of the Geomatics 84 Exhibition and Conference*, National Cartography Centre, Tehran, Iran, 2005.
31. **Shojaei, D.** 2005. Using GIS and Application for Tourism. In *Proceedings of the Map Middle East 2005, 1st Annual Middle East Conference and Exhibition on Geospatial Information, Technology and Applications*, Dubai, UAE, 2005, <https://people.eng.unimelb.edu.au/shojaeid/Publications/Using%20GIS%20and%20Application%20for%20Tourism.pdf>.

Book Chapters

1. Olfat, H. & **Shojaei, D.** 2019. Modernizing Land Administration Systems to Support Sustainable Development Goals - Case Study of Victoria, Australia. In *Sustainable Development Goals Connectivity Dilemma*, Rajabifard, A., Ed.; CRC Press: Boca Raton, pp. 325-336, doi:<https://doi.org/10.1201/9780429290626>.
2. Pouliot, J., Ellul, C., Hubert, F., Wang, C., Rajabifard, A., Kalantari, M., **Shojaei, D.**, Atazadeh, B., van Oosterom, P.J.M., de Vries, M.E. & Ying, S. 2018. Visualization and New Opportunities. In *Best Practices 3D Cadastres - Extended version*, Oosterom, P.v., Ed.; International Federation of Surveyors (FIG): Copenhagen, Denmark, pp. 183-230, doi:<http://resolver.tudelft.nl/uuid:fd47c799-c03f-4018-9653-a1463ba93534>.
3. **Shojaei, D.** 2012. 3D Visualisation as a Tool to Facilitate Managing Land and Properties. In *A National Infrastructure for Managing Land Information*, Rajabifard, A., Williamson, I., Kalantari, M., Eds.; The University of Melbourne pp. 88-94, <https://citeseerx.ist.psu.edu/document?repid=rep1&type=pdf&doi=0b0fb91231ec10b56d6535ba6a44b36b08097ef3#page=89>.

Magazine Articles

1. **Shojaei, D.**, Rajabifard, A., Kalantari, M. & Bishop, I. 2013. 3D Visualisation of Cadastres. *Traverse* 292, pp. 22-24.
2. **Shojaei, D.** & Rajabifard, A. 2013. Time to Visualise Cadastre in 3D. *Geospatial Today* 6, pp. 40-43.
3. Aien, A., Rajabifard, A., Kalantari, M., Williamson, I. & **Shojaei, D.** 2011. 3D Cadastre in Victoria, Converting Building Plans of Subdivision to LandXML. *GIM International* 25, 8, <https://www.gim-international.com/content/article/3d-cadastre-in-victoria-australia>.

RESEARCH GRANTS AND AWARDS

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| 2024 | RIIF Collaborative Equipment Grant 2024, the University of Melbourne |
| 2024 | Geospatial Excellence Award - Educational Development, Oceanic Winner, Geospatial Council of Australia |
| 2023 | The Faculty of Engineering and Information Technology (FEIT) Excellence Awards - Teaching and Learning for Early Career Academics, the University of Melbourne |
| 2023 | CIS-IE 2023 Seed Funding - Using Artificial Intelligence to detect and extract underground utilities from Ground Penetrating Radar (GPR) images, The University of Melbourne |
| 2023 | Sprint Research Grants - 5G mmWave Network Planning Tool, Telstra / The University of Melbourne |
| 2023 | Geospatial Excellence Award - Educational Development, Victorian Award, Geospatial Council of Australia |
| 2023 | ABP-FEIT Research Collaboration Development Grant, the University of Melbourne |
| 2023 | Sprint Research Grants - Detection and Capturing of Street Assets Using Artificial Intelligence, Telstra / The University of Melbourne |
| 2023 | Major Teaching and Learning Infrastructure Funding, the University of Melbourne |
| 2022 | ARC Discovery Project - A digital twin framework for human mobility measurement in the home setting, 2023-2025, the University of Melbourne |
| 2022 | Research Initiatives Fund (RIF) Collaborative Equipment Grant, The University of Melbourne |
| 2022 | Sprint Research Grants - Detection and Capturing of Street Pole Positions from Imagery using Artificial Intelligence, Telstra / The University of Melbourne |

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| 2022 | FEIT Visiting Academic Fellows (Outgoing), The University of Melbourne |
| 2021 | Special Recognition Award from the School of EMI, The University of Melbourne. This is in recognition of a team work in reimagining Geomatics education and developing new programs in Digital Infrastructure Engineering |
| 2021 | Dyason Fellowships - The integration of 3D cadastre and planning approval processes to facilitate urban development, The University of Melbourne |
| 2021 | Early Career Researcher Grant Scheme - Mobile Crowdsourcing for High-Quality Base Maps, The University of Melbourne |
| 2021 | Major Teaching and Learning Infrastructure Funding, The University of Melbourne |
| 2021 | Lux Modus Outstanding Paper in 3D Modelling, City 3D CITYLUR: Modelling 3D Land-Use Regulations to Support Issuing a Planning Permit, 3DGeoInfo 2021, New York, USA |
| 2021 | Dual-delivery Contribution Grant for GEOM20015, The University of Melbourne |
| 2021 | Co-Supervisor, Mitacs - Land-use regulation modelling and conflicts detection in 3D city models: A proof of concept based on Bentley software solutions (3D CityLuR), Laval University |
| 2021 | Lead CI, Research grant, 5G mmWave network planning and customer service qualification using ray-tracing, Telstra |
| 2021 | Lead CI, ePlanning and eApprovals Project, CRC Building 4.0 |
| 2020 | Departmental Award, for outstanding work in teaching and research, Department of Infrastructure Engineering |
| 2019 | MSE Strategic Investment Fund, The University of Melbourne |
| 2019 | Travel Grant to Attend the World Urban Forum in Abu Dhabi |
| 2018 | MSE Strategic Investment Fund, The University of Melbourne |
| 2013 | Elected Student Member, The Institution of Surveyors Victoria, Australia |
| 2012 | Award for best paper presentation, Post Graduate Conference, The University of Melbourne |
| 2010 | Melbourne International Research Scholarship (MIRS) |
| 2010 | Melbourne International Fee Remission Scholarship (MIFRS) |
| 2009 | Two full PhD Scholarships from the European Commission (Erasmus Mundus Scholarship) |

PROJECTS

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| 2024 | Using Artificial Intelligence to detect and extract underground utilities from Ground Penetrating Radar (GPR) images |
| 2022 - 2023 | Detection and Capturing of Street Assets using Artificial Intelligence |
| 2022 - 2023 | Detection and Capturing of Street Pole Positions from Imagery using Artificial Intelligence |
| 2022 - 2023 | Mobile Crowdsourcing for High-Quality Base Maps |
| 2021 | ePlanning and eApprovals Project, CRC Building 4.0 |
| 2019 - 2020 | Technical Team Member of Fishermans Bend Digital Twin for DELWP |
| 2017 - 2018 | Technical Team Member of a 3D Cadastre research project with the Department of Survey and Mapping in Malaysia |
| 2017 - 2019 | Technical Team Member of an ARC Linkage project on 3D Property Ownership Map Base for Smart Urban Land Administration |
| 2014 - 2015 | Technical Team Member of developing an application for 3D City Modelling of Tehran City |
| 2011 - 2012 | Technical Team Member of Proposing a Street Coding Approach for Tehran City |
| 2010 - 2014 | Technical Team Member of an ARC Linkage project on Land and Property Information in 3D |
| 2007 - 2010 | Project Manager of Monitoring of Development of Green Areas in Isfahan Mobarakeh Steel Company |
| 2007 - 2008 | Consultant of Modernising GIS Division in Isfahan Province Industrial Estates Co, Isfahan, Iran |
| 2006 | Manager of a GIS Project for Isfahan Regional Water Company, Isfahan, Iran |
| 2006 | Manager of a Road Surveying Project, Isfahan, Iran |
| 2006 | Manager of a Surveying/Cadastral Project, Isfahan (Shahreza), Iran |
| 2006 | Manager of a Surveying project to create 1:500 Cadastral Map, Dezfool, Iran |
| 2005 | Manager of a GIS Project for Hassan Khan Cadastre, Tehran, Iran |
| 2005 | Technical Team Member of GIS Needs Analysis and Conceptual Database Design Project for Khuzestan Power Industry, Iran |
| 2005 | Technical Team Member: GIS Needs Analysis and Conceptual Database Design Project for East Azerbaijan Regional Water Corp., Iran |
| 2004 | Manager of a Surveying Project for Tehran Metro – Line 4 in Tehran, Iran |
| 2004 | Manager of a Surveying Project in Booshehr, Iran |
| 2004 | Manager of a Surveying Project in Tehran, Iran |
| 2004 | Technical Team Member of a Road Surveying Project, Damavand, Iran |
| 2003 | Digital Cartographer: Private Sector |

RESEARCH SUPERVISION

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|-------------|---|
| 2023 | PhD Student - Real-Time Centimetre-Grade 2D Floor Plan Generation from Mobile Laser Scanners - Mojtaba Akhoundi Khezrabad |
| 2023 | PhD Student - Utilization of Building Information Modeling to Streamline the Process of Building Permit Systems in Line with the Parametric Design Principles - Nikoo (Fatemeh) Mirhosseini |
| 2022 | Masters Students - 5G mmWave Network Planning and Customer Service Qualification in Urban and Suburban areas - Bencheng Fan, Elizabeth Kurisinkal Robin, Minh An Dao |
| 2022 | PhD Student - Automatic Electrical Pole Capturing Using Machine Learning - Cipher (Zezheng) Zhang |
| 2022 | PhD Student - Application of Building Information Modelling (BIM) in property valuation - Peyman Jafary |
| 2021 | PhD Student - Improving Land Administration Reform by Aligning Incentive Systems - Tony Burns |
| 2021 | Masters Student - Automatic Object Detection with Artificial Intelligence - Cipher (Zezheng) Zhang |
| 2021 | Masters Students - Capturing, Modelling and Visualisation of RRRs in Underground 3D Cadastre - A Case Study in Victoria - Patrice Moloney, Sukruta Matta, Giulia Zanotto |
| 2021 | Masters Students - 5G mmWave Network Planning and Customer Service Qualification in Urban and Suburban Areas - Huixuan Chen, Zhuangzhuang Ma, Shiming Fan, Yingying Gong |
| 2021 | PhD Student - The Digitisation of Repairs and Maintenance in Residential High-rise Apartments - Karen Tanfield |
| 2020 | PhD Student - Augmented Reality Visualization of Subsurface Utilities - Mohamed Zahlan Abdul Muthalif |
| 2020 | Masters Student - Application Of 3D Cadastre And 3D Urban Analytics in Digital Twin - Hazel Altundal |
| 2020 | Masters Student - Application Of 3D Cadastre And 3D Urban Analytics in Digital Twin - Ivan Widjaja |
| 2020 | Masters Student - Developing a Method to Extract Exterior Components of BIM Files to Enhance 3D Visualization on the Web - Su Chen |
| 2020 | Masters Student - Requirement engineering for development of a 3D platform to visualise major infrastructures - Shrikrishna Sanjay Dere |
| 2019 - 2022 | PhD Student - Spatio-temporal Conflicts in Building Regulations - Saied Emamgholian, (Laval University) |
| 2017 | Masters Student - 3D Neighbourhood Analysis for 3D Cadastre - Saied Emamgholian (KNT University of Technology, Iran) |
| 2017 | Bachelor Student - Data Modelling of 3D Legal Objects: How to capture and define 3D boundaries - Roy Posi (RMIT University) |
| 2016 | Masters Student - 3D Data Validation for 3D cadastre - Sebastian Ignacio Quinones Faundez (The University of Melbourne) |

PROFESSIONAL MEMBERSHIPS

- Surveying and Spatial Sciences Institute (SSSI), Australia
- The Institution of Surveyors Victoria (ISV), Australia

RESEARCH COLLABORATION

- Telstra
- Building 4.0 CRC
- Laval University

EDITORIAL BOARD

- Journal of Frontiers in Built Environment (Building Information Modelling (BIM))
- Journal of Frontiers in Environmental Science
- Journal of Civil Engineering Researchers

PEER REVIEWER/REFEREE FOR

- Australian Research Councils for Linkage and Discovery Projects
- International Journal of Geographical Information Science (IJGIS)
- Land Use Policy Journal (LUP)
- Habitat International
- Journal of Spatial Science
- Journal of Transactions in GIS
- Journal of Computers, Environment and Urban Systems
- International Journal of Digital Earth
- International Journal of Geo-Information

GUEST EDITOR

- Special issue on Digital Twins and Land Administration Systems in ISPRS International Journal of Geo-Information (IJGI)

SEMINARS AND CONFERENCES

- Oct 2024: 4th Digital Twin International Conference - Milan, Italy (Invited Speaker)
- Jan 2024: 30th Annual Pacific Rim Real Estate Society (PRRES) Conference - Broadbeach, Queensland, Australia (Invited to talk)
- May 2023: Application of Digital Twin for Urban Planning and Land Administration at Locate 2023, Adelaide (Workshop)
- May 2023: Mobile crowdsourcing for high quality base maps at Locate 2023, Adelaide (Selected for oral presentation)
- Oct 2022: Digital Twin in Construction Approvals in the Workshop on Enabling Digital Twins, 7th Smart Data Smart Cities & 17th 3D GeoInfo, Sydney (Invited to talk)
- Sep 2022: Digital Twin Concept and its Application in Urban Management - Quebec (Invited to talk)
- Jul 2022: Presentation in ISV - Course Update for 2023 - the University of Melbourne (Invited to talk)
- March 2021: "Education in Surveying" at a seminar organised by CSV (Invited to talk)
- Feb 2020: Oracle Construction Technology Summit - Melbourne (Invited to talk)
- Feb 2020: YP Webinar: Fisherman's Bend Digital Twin - Melbourne (Invited to talk)
- Nov 2019: BIM and Modern Urban Land Administration Training Program (I ran this training seminar at the University of Melbourne)
- Sep 2019: Presented a paper in 3D GeoInfo Conference 2019 - Singapore (Selected for oral presentation)
- Feb 2019: 3D Land and Property in Modern Land Administration & 3D Digital Cadastre Seminar at the University of Melbourne (Invited to talk)
- Sep 2018: International Symposium on A Smart Sustainable Future for All - the University of Melbourne (Selected for oral presentation)
- Feb 2018: Presented at MELBIM at RMIT University - Melbourne (Invited to talk)
- Sep 2017: Presented a paper in 3D GeoInfo Conference 2017 - Melbourne (Selected for oral presentation)
- Apr 2016: Locate 16 - Melbourne (Selected for oral presentation)
- Sep 2012: 3rd International Workshop on 3D Cadastres: Developments and Practices - Shenzhen (Selected for oral presentation)

SCIENTISTS ASSOCIATIONS

- Since 2011 - Member of a 3D Cadastres working group run by the International Federation of Surveyors (FIG)