

# Anh-Dzung Doan

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## EDUCATION

### The University of Adelaide

Ph.D. in Computer Science

Supervisors: [Prof. Tat-Jun Chin](#) and [Dr. Yasir Latif](#)

South Australia, Australia

Mar. 2018 - Mar. 2022

### Vietnam National University (University of Science)

B.Sc. (with Honours) in IT, with a focus on Computer Science.

Overall GPA: 3.82/4.0

Rank: 3/47 (the Honours program), 3/303 (the faculty) and 5/1635 (the university)

Ho Chi Minh City, Vietnam

Sept. 2009 - Sept. 2013

## EXPERIENCE

### Postdoctoral researcher

Australian Institute for Machine Learning

Supervisors: [Prof. Tat-Jun Chin](#) and [Assoc. Prof. Markus Wagner](#).

July 2021 - Present

South Australia, Australia

- Project: [Edge Domain Adaptation for Maritime Situational Awareness](#).
  - \* Industry partner: [Safran](#).
  - \* Our human-in-the-loop test time adaptation method exhibits promising outcomes in mitigating the domain disparity between simulated and real images, including visible and infrared modalities captured by [Vigy](#).
  - \* Our domain gap evaluation strategy helps save 50%-90% energy usage for continual domain adaptation without sacrificing the overall performance of the object detector.
- Project: Quantum robust fitting.
  - \* Developed a hybrid quantum-classical algorithm for robust fitting, providing a global solution or an error bound. This is a practical improvement over randomised heuristics (e.g., RANSAC).

### Casual academic staff

The University of Adelaide

July 2019 - Aug. 2022

South Australia, Australia

- Mentored five master students in their final projects
- Teaching assistant in courses "Foundation of Computer Science" and "Programming MATLAB & C"

### Ph.D. student

Australian Institute for Machine Learning

Supervisors: [Prof. Tat-Jun Chin](#) and [Dr. Yasir Latif](#).

Mar. 2018 - July 2021

South Australia, Australia

- Project: Semantics for Localisation and Place Recognition.
  - \* Developed algorithms for Life-long Visual Place Recognition.
  - \* Won [IEEE RA-L Best Paper Award 2021](#) and [APRS/IAPR Best Paper Award in DICTA 2019](#)
- Project: Synthesis of urban scenes from games
  - \* Developed G2D ([website](#))—an interactive software to collect data from Grand Theft Auto V.
  - \* G2D has been widely adopted by robotics and computer vision researchers worldwide.
- Project: [NASA Space Robotics Challenge \(Final stage\)](#)
  - \* Led the development of the localisation solution for The University of Adelaide team.
  - \* [Won 3rd place and an innovation award.](#)

### Research intern

Niantic

Supervisor: [Dr. Soohyun Bae](#).

June 2020 - Oct. 2020

Remote

- Project: Visual positioning system.
  - \* Developed a 3D map summarisation method ([US patent pending](#)).

### Research assistant

Temasek Laboratories, Singapore University of Technology and Design

Supervisor: [Assoc. Prof. Ngai-Man Cheung](#).

Oct. 2014 - Sept. 2017

Singapore

- Project: Urban-Area Scene-Based Localisation
  - \* Developed algorithms for on-device visual localisation.

## Co-founder

Mobile Vision

- Project: Fine-grained object recognition mobile.
  - \* Developed algorithms, back-end, and front-end architectures.

Aug. 2013 - July 2014  
Ho Chi Minh City, Vietnam

## Research intern

Japan Advanced Institute of Science and Technology

Supervisor: [Assoc. Prof. Atsuo Yoshitaka](#).

- Conducted research in human action recognition.

Feb. 2013 - Mar. 2013  
Ishikawa, Japan

## AWARDS

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| 2022      | <b>IEEE RA-L Best Paper Award 2021</b>   |
| 2021      | <b>3rd place &amp; Innovation award in NASA Space Robotics Challenge.</b>  |
| 2018-2021 | <b>University of Adelaide International Wildcard Scholarship</b><br>(100% tuition fee, living expense for 3 years, and other expenses (insurance, relocation allowance, thesis allowance, etc)).                   |
| 2019      | <b>IAPR/IPRS Best Paper Award, DICTA 2019.</b>   |
| 2013      | 1st Prize - The Award for Excellent Research in 2013, awarded by Vietnam National University.<br>Top 5 Highest GPA of the graduating class<br>Chancellor's Award for Excellent Achievement in Scientific Research. |

## PUBLICATIONS

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Published 10+ papers in top (A\*) conferences & (Q1) journals of AI fields: robotics (e.g., ICRA, IROS, RA-L), computer vision (e.g., CVPR, ICCV, ECCV, TIP), and multimedia (e.g., TMM). See also [Google Scholar](#)

### Patent

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| 2022 | Dung Anh Doan, Daniyar Turmukhambetov, Soohyun Bae<br><i>"Repeatability predictions of interest points"</i><br>US Patent Application Number 17730555 |
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### Journals

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| 2024 | <b>(SJR Q1)</b> Anh-Dzung Doan, Bach Long Nguyen, Surabhi Gupta, Ian Reid, Markus Wagner, Tat-Jun Chin<br><i>"Assessing Domain Gap for Continual Domain Adaptation in Object Detection"</i><br>Computer Vision and Image Understanding (CVIU)<br><br>Andrew Du, Anh-Dzung Doan, Yee Wei Law, Tat-Jun Chin<br><i>"Domain Adaptation for Satellite-Borne Hyperspectral Cloud Detection"</i><br>Under review<br><br><b>(SJR Q1)</b> Bach Long Nguyen, Anh-Dzung Doan, Tat-Jun Chin, Christophe Guettier, Estelle Parra, Ian Reid, Markus Wagner<br><i>"Sensor Allocation and Online-Learning-based Path Planning for Maritime Situational Awareness Enhancement: A Multi-Agent Approach"</i><br>IEEE Transactions on Intelligent Transportation Systems (T-ITS) |
| 2021 | <b>(SJR Q1)</b> Anh-Dzung Doan, Yasir Latif, Tat-Jun Chin, Ian Reid<br><i>"HM<sup>4</sup>: Hidden Markov Model with Memory Management for Visual Place Recognition"</i><br>IEEE Robotics and Automation Letters (RA-L).<br><b>IEEE RA-L Best Paper Award</b>   |
| 2020 | <b>(SJR Q1)</b> Anh-Dzung Doan, Yasir Latif, Tat-Jun Chin, Yu Liu, Shin-Fang Ch'ng, Thanh-Toan Do, Ian Reid<br><i>"Visual Localization Under Appearance Change: Filtering Approaches"</i><br>Neural Computing and Applications (NCAA).<br><b>Special Issue on Best of DICTA 2019</b>   |

- 2019 **(SJR Q1)** Thanh-Toan Do, Tuan Hoang, Dang-Khoa Le Tan, Anh-Dzung Doan, Ngai-Man Cheung  
*"Compact Hash Code Learning with Binary Deep Neural Network"*  
 IEEE Transactions on Multimedia (TMM).
- 2018 **(SJR Q1)** Ngoc-Trung Tran, Dang-Khoa Le Tan, Anh-Dzung Doan, Thanh-Toan Do, Tuan-Anh Bui, Mengxuan Tan, Ngai-Man Cheung  
*"On-device Scalable Image-based Localization via Prioritized Cascade Search and Fast One-Many RANSAC"*  
 IEEE Transactions on Image Processing (TIP).

## Conferences

- 2024 Anh-Dzung Doan, Bach Long Nguyen, Terry Lim, Madhuka Jayawardhana, Ian Reid, Markus Wagner, Tat-Jun Chin.  
*"Human-in-the-Loop Test-Time Domain Adaptation for Object Detection"*.  
 Under review
- 2022 **(CORE A\*)** Anh-Dzung Doan, Michele Sasdelli, Tat-Jun Chin, David Suter.  
*"A Hybrid Quantum-Classical Algorithm for Robust Fitting"*.  
 IEEE/CVF Conference on Computer Vision and Pattern Recognition (CVPR).
- (CORE A\*)** Ragav Sachdeva, Ravi Hammond, James Bockman, Alec Arthur, Brandon Smart, Dustin Craggs, Anh-Dzung Doan, Thomas Rowntree, Elijah Schutz, Adrian Orenstein, Andy Yu, Tat-Jun Chin, Ian Reid  
*"Robotic Vision for Space Mining"*  
 International Conference on Robotics and Automation (ICRA).
- 2021 **(CORE A\*)** Anh-Dzung Doan, Daniyar Turmukhambetov, Yasir Latif, Tat-Jun Chin, Soohyun Bae  
*"Learning to Predict Repeatability of Interest Points"*  
 International Conference on Robotics and Automation (ICRA).
- 2020 **(CORE A\*)** Yasir Latif, Anh-Dzung Doan, Tat-Jun Chin, Ian Reid  
*"SPRINT: Subgraph Place Recognition for INtelligent Transportation"*  
 International Conference on Robotics and Automation (ICRA).
- 2019 **(CORE A\*)** Anh-Dzung Doan, Yasir Latif, Tat-Jun Chin, Yu Liu, Thanh-Toan Do, Ian Reid  
*"Scalable Place Recognition Under Appearance Change for Autonomous Driving"*  
 IEEE/CVF International Conference on Computer Vision (ICCV) **(Oral)**.
- Anh-Dzung Doan, Yasir Latif, Thanh-Toan Do, Yu Liu, Shin-Fang Ch'ng, Tat-Jun Chin, Ian Reid  
*"Visual Localization Under Appearance Change: A Filtering Approach"*  
 International Conference on Digital Image Computing: Techniques and Applications (DICTA)  
**APRS / IAPR Best paper award.**
- (CORE A)** Shin-Fang Ch'ng, Alireza Khosravian, Anh-Dzung Doan, Tat-Jun Chin  
*"Outlier-Robust Manifold Pre-Integration for INS/GPS Fusion"*  
 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).
- 2016 **(CORE A\*)** Thanh-Toan Do, Anh-Dzung Doan, Ngai-Man Cheung  
*"Learning to Hash with Binary Deep Neural Network"*  
 European Conference on Computer Vision (ECCV).
- (CORE A\*)** Thanh-Toan Do, Anh-Dzung Doan, Duc-Thanh Nguyen, Ngai-Man Cheung  
*"Binary Hashing with Semidefinite Relaxation and Augmented Lagrangian"*  
 European Conference on Computer Vision (ECCV) **(Spotlight)**.
- 2013 Dung A. Doan, Ngoc-Trung Tran, Phong D. Vo, Bac Le, Atsuo Yoshitaka  
*"Combining Descriptors Extracted from Feature Maps of Deconvolutional Networks and SIFT Descriptors in Scene Image Classification"*  
 The International Conference on Computational Science and Its Applications (ICCSA) **(Oral)**.
- 2013 Dung A. Doan, Ngoc-Trung Tran, Phong D. Vo, Bac Le  
*"Learned and Designed Features for Sparse Coding in Image Classification"*  
 The 10<sup>th</sup> International Conference on Computing and Communication Technologies (RIVF) **(Oral)**.

## Technical reports

2019 Anh-Dzung Doan, Abdul Mohsi Jawaaid, Thanh-Toan Do, Tat-Jun Chin  
"G2D: from GTA to Data"  
arXiv preprint arXiv:1806.07381.  
[\[Project page\]](#)

## MENTORSHIP

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I co-supervise four Ph.D. students

- Andrew Du - Topic: Edge domain adaptation.
- Ryan Faulkner - Topic: Diffusion models for LiDAR.
- Tam Nguyen - Topic: Neuromorphic computing for robust fitting.
- Anh Vu Nguyen - Topic: Active learning for streaming data.

## ACTIVITIES

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Member of Technical Program Committee

- RSS 2023 Workshop on Towards Safe Autonomy: New Challenges and Trends in Robot Perception ([website](#))

Regular reviewer for top AI conferences and journals (robotics, computer vision, machine learning):

- IEEE Robotics and Automation Letters (RA-L).
- International Journal of Robotics Research (IJRR).
- IEEE Transactions on Multimedia (TMM).
- APSIPA Transactions on Signal and Information Processing.
- IEEE Transactions on Emerging Topics in Computational Intelligence.
- IEEE International Conference on Robotics and Automation (ICRA)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)
- IEEE/CVF Conference on Computer Vision and Pattern Recognition.
- IEEE/CVF International Conference on Computer Vision (ICCV).
- European Conference on Computer Vision (ECCV).
- Asian Conference on Computer Vision (ACCV).
- Asian Conference on Machine Learning (ACML).
- AAAI Conference on Artificial Intelligence.
- Digital Image Computing: Techniques and Applications (DICTA).

## SKILLS

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**Languages:** C/C++, Python, MATLAB, Java, SQL.

**Frameworks:** Robot Operating System (ROS), Pytorch, Streamlit.

**Developer Tools:** Git, Eclipse, PyCharm, Visual Studio.

**Libraries:** Detectron2, Faiss, OpenCV, Gurobi, COLMAP, Numpy, Matplotlib

## REFERENCES

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Prof. Tat-Jun Chin  
School of Computer Science.  
Professorial Chair of Sentient Satellites, SmartSat CRC.  
Director for AI for Space, Australian Institute for Machine Learning.  
The University of Adelaide, Australia.  
Email: [tat-jun.chin@adelaide.edu.au](mailto:tat-jun.chin@adelaide.edu.au)  
Website: <https://cs.adelaide.edu.au/~ssl/>

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Department of Data Science and AI, Faculty of Information Technology  
Smart Energy Systems Associate Director, Monash Energy Institute  
Monash University, Australia.  
Email: [markus.wagner@monash.edu](mailto:markus.wagner@monash.edu)  
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Website: <http://yatif.github.io>