



BUI BACH THUAN

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EDUCATION

Doctor of Engineering <i>Information Science and Engineering</i> <i>GPA 5.0/5.0</i>	Oct. 2022 – Now
Ritsumeikan University	Osaka, Japan
Master of Engineering <i>Information Science and Engineering</i> <i>GPA 4.67/5.0</i>	Oct. 2020 – Sep 2022
Ritsumeikan University	Shiga, Japan
Bachelor of Engineering <i>Telecommunications Engineering</i>	Sep. 2015 – Sep 2019
Hanoi University of Science and Engineering	Hanoi, Vietnam

RESEARCH BACKGROUND

Proficient in Computer Vision, Machine Learning, Visual Localization, Visual SLAM, and Evolutionary Algorithms. I gained approximately one year of industry experience developing AI algorithms for face detection and recognition before joining AIS Lab to pursue research on camera re-localization and mapping with machine learning (ML) techniques. During the first two years of my PhD, I developed multiple ML-based localization algorithms that accelerated camera-based localization by up to 700 times faster than traditional methods. Additionally, I authored the pioneering paper that applied ML (Transformer-based) to represent 3D maps with points and lines. My research has been published/presented in leading robotics venues, including IROS, ICRA, RA-L, and ISPRS (IF 11).

WORK EXPERIENCE

Research Intern - Remote	August 2024 – Now
Coolant	San Francisco, USA
<ul style="list-style-type: none">Enhancing Structure from Motion for Aerial Forestry ImagesEnhancing Image Matching AlgorithmsModeling 3D Forestry using Gaussian Splatting	
Research Assistant	June 2021 – Now
Advanced Intelligent System Laboratory	Shiga, Japan
<ul style="list-style-type: none">Developed a back-end API for data collection on carsAnalyzed collected data and proposed a recommendation system based on driver behavior	
AI Algorithm Engineer	November 2019 – April 2020
VTI Corporation	Hanoi, Vietnam
<ul style="list-style-type: none">Member of AI algorithms team, working on face recognition using deep learning	
Laboratory Assistant	Oct. 2017 – Oct. 2019
Communications Research and Development Laboratory	Hanoi, Vietnam
<ul style="list-style-type: none">Led a group of undergrad. students for researching evolutionary algorithms on antenna design	

SELECTED PUBLICATIONS

1. [Bach-Thuan Bui](#), [Huy-Hoang Bui](#), [Yasuyuki Fujii](#), [Dinh-Tuan Tran](#), and [Joo-Ho Lee](#)
Improved 3D Point-Line Mapping Regression for Camera Relocalization. arXiv preprint arXiv:2502.20814, 2025. [[Paper](#) | [Code](#)]

2. Huy-Hoang Bui, Bach-Thuan Bui, Dinh-Tuan Tran, and Joo-Ho Lee
Leveraging Neural Radiance Field in Descriptor Synthesis for Keypoints Scene Coordinate Regression. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024. [[Paper](#) | [Code](#)]
3. Bach-Thuan Bui, Huy-Hoang Bui, Dinh-Tuan Tran, and Joo-Ho Lee
Representing 3D sparse map points and lines for camera relocalization. IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2024. [[Paper](#) | [Website](#) | [Code](#) | [LinkedIn](#)]
4. Bach-Thuan Bui, Dinh-Tuan Tran, and Joo-Ho Lee
D2S: Representing local descriptors and global scene coordinates for camera relocalization. IEEE Robotics and Automation Letters (RA-L), 2024. [[Paper](#) | [Website](#) | [Code](#)]
5. Bach-Thuan Bui, Dinh-Tuan Tran, and Joo-Ho Lee
Fast and Lightweight Scene Regressor for Camera Relocalization. 16th IEEE/SICE International Symposium on System Integration (SII), 2023. [[Paper](#) | [Code](#)]
6. Bach-Thuan Bui, Dinh-Tuan Tran, and Joo-Ho Lee
FeatLoc: Absolute pose regressor for indoor 2D sparse features with simplistic view synthesizing. ISPRS Journal of Photogrammetry and Remote Sensing, 2022 (IF 11.7). [[Paper](#) | [Code](#)]

OPEN SOURCE PROJECT

1. PL2Map (204★): <https://github.com/ais-lab/pl2map>
2. D2S (89★): <https://github.com/ais-lab/d2s>
3. FeatLoc (7★): <https://github.com/ais-lab/featloc>

HONORS AND AWARDS

Excellent Research Award Recognition for high-quality research results at Ritsumeikan University in 2025	Mar. 2025
Research Grant For Doctoral Student For a short-term exchange at the Technical University of Munich, Germany (JPY 500,000)	Aug. 2024
Research Encouragement Award Recognition for high-quality research results at Ritsumeikan University in 2023	Feb. 2024
Research Grant For Doctoral Student For a foreign research exchange (JPY 300,000)	Jan. 2024
Young Author Award SICE International Young Author Award, with prize money of JPY 100,000 in SII2024	Jan. 2024
Excellent Research Award Recognition for high-quality research results at Ritsumeikan University in 2022	Mar. 2023
Japanese Government Scholarship (MEXT) Merit-based grant for students pursuing Ph.D. education in Japan	Oct. 2022 – Sep. 2025
Candidates to be student representatives at the degree awarding ceremony Chosen based on overall academic and research performance during M.E. study	Spring 2022
Japanese Government Scholarship (MEXT) Merit-based grant for students pursuing M.E. education in Japan	Oct. 2020 – Sep. 2022
Third Prize of Science Research Competition for Student Prize for research results on evolutionary algorithm in the automation of antenna design	May 2019

SKILLS

Languages: Strong reading, writing and speaking competencies for English and Vietnamese.
Programming: Python (Pytorch, NumPy, SciPy, Matplotlib, Pandas), C/C++, Assembly, MATLAB.
Document Creation: Microsoft Office Suite, LaTeX, Markdown.