

Tran Nguyen Le

D.Sc. - Robotacist

Date of Birth: 8/11/1995

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ORCID

Github

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Scholar



Education

2019–2023 : PhD, Automation, Systems and Control Engineering, Intelligent Robotics Group, Aalto University, Helsinki, Finland.

Research topics : Robotics, Machine Learning and Deep Learning, Robotic Grasping and Manipulation, Robot Learning, Multi-Modal Perception

Dissertation: *Harnessing the physical properties of objects for robotic grasping and manipulation*

Supervisor: Professor Ville Kyrki

Opponent: Professor Roberto Calandra

2017–2019 : Master of Science, Automation Engineering, Tampere University (Formerly: Tampere University of Technology), Tampere, Finland.

Majors : Robotics, Factory Automation and Industrial Informatics

GPA : 4.52/5 (Graduated with distinction)

2016–2017 : Bachelor of Engineering, Mechanical Engineering, VIA University College, Horsens, Denmark.

Note : Double Degree with ERASMUS+ program for excellent candidate from HAMK

2013–2017 : Bachelor of Engineering, Automation Engineering, Häme University of Applied Sciences (HAMK), Valkeakoski, Finland.

GPA : 4.7/5 (Graduated with distinction)

2009–2013 : Mathematics and Information Technology class, Le Quy Don High School for Gifted Student, Vung Tau, Vietnam.

Work Experience

Loisto AI, Finland

Oct,2022 – **Lead Data Scientist.**

Oct,2023 Develop and deploy robust and scalable AI software solutions at production level for multiple companies.

Intelligent Robotics Group, Aalto University, Finland

Jan,2024 – **Postdoctoral Researcher.**

Present: Research focuses on Robotic Manipulation, Robot Learning, Multi-Modal Perception, and Collaborative AI.

Sep,2019 – **Doctoral Candidate.**

Dec,2023: The research towards my doctoral thesis focuses on the intersection of machine learning and robotics specifically in the domain of robotic perception and robotic manipulation and grasping.

Advisor : **Dr. Fares J. Abu-Dakka**, Research Fellow, Department of Electrical Engineering and Automation, Aalto University

Supervisor : **Dr. Ville Kyrki**, Associate Professor, Department of Electrical Engineering and Automation, Aalto University

Jun,2018 – **Research Assistant (Summer Intern + Master Thesis Worker).**

Aug,2019 Research focuses on a recent robotic field: soft robotics. The project tackles the problem of safe grasping and manipulation with soft robotic hands by incorporating multi-modal sensory input to employ a suitable control strategy.

Advisor : **Dr. Jens Lundell**, *Postdoctoral Researcher*, KTH Royal Institute of Technology

Supervisor : **Dr. Ville Kyrki**, *Associate Professor*, *Department of Electrical Engineering and Automation*, Aalto University

[Mechatronics Lab, Tampere University, Finland](#)

Jan,2018 – **Research Assistant.**

Jun,2018 Design and develop vision system for autonomous surface vessel (ASV).

Advisor : **Dr. Jussi Aaltonen**, *Research Manager*, *Faculty of Engineering and Natural Sciences | Automation Technology and Mechanical Engineering*, Tampere University

Projects

2019 – 2022 **Interactive Perception-Action-Learning for Modelling Objects (IPALM).**

Funded by: Academy of Finland, European Commission

Role : Researcher – Duration: 3 years

Publications

Journal Articles

2022 **Tran Nguyen Le**, Jens Lundell, Fares J. Abu-Dakka, and Ville Kyrki. Deformation-aware data-driven grasp synthesis. *IEEE Robotics and Automation Letters*, volume 7, pages 3038–3045. IEEE, 2022, (**Impact Factor:4.321**).

2021 Haihang Wang, Fares J. Abu-Dakka, **Tran Nguyen Le**, Ville Kyrki, and He Xu. A novel soft robotic hand design with human-inspired soft palm: Achieving a great diversity of grasps. *IEEE Robotics and Automation Magazine*, volume 28, pages 37–49. IEEE, 2021, (**Impact Factor:5.229**).

2021 **Tran Nguyen Le**, Francesco Verdoja, Fares J. Abu-Dakka, and Ville Kyrki. Probabilistic surface friction estimation based on visual and haptic measurements. *IEEE Robotics and Automation Letters*, volume 6, pages 2838–2845. IEEE, 2021, (**Impact Factor:4.321**).

In Conference Proceedings

2023 **Tran Nguyen Le**, Fares J. Abu-Dakka, and Ville Kyrki. SPONGE: Sequence Planning with Deformable-ON-Rigid Contact Prediction from Geometric Features. In *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2023.

2023 Jens Lundell, Francesco Verdoja, **Tran Nguyen Le**, Arsalan Mousavian, Dieter Fox, and Ville Kyrki. Constrained generative sampling of 6-DoF grasps. In *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2023.

2022 **Tran Nguyen Le**, Jens Lundell, Fares J. Abu-Dakka, and Ville Kyrki. A novel simulation-based quality metric for evaluating grasps on 3d deformable objects. In *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*. IEEE, 2022.

2021 Jens Lundell, Enric Corona, **Tran Nguyen Le**, Francesco Verdoja, Philippe Weinzaepfel, Grégory Rogez, Francesc Moreno-Noguer, and Ville Kyrki. Multi-fingert: Generative coarse-to-fine sampling of multi-finger grasps. In *2021 IEEE International Conference on Robotics and Automation (ICRA)*, pages 4495–4501. IEEE, 2021.

2020 **Tran Nguyen Le**, Jens Lundell, and Ville Kyrki. Safe grasping with a force controlled soft robotic hand. In *2020 IEEE International Conference on Systems, Man, and Cybernetics (SMC)*, pages 342–349. IEEE, 2020.

Workshop Papers

- 2024 Shibe Zhu, **Tran Nguyen Le**, Samuel Kaski, and Ville Kyrki. Online learning of human constraints from feedback in shared autonomy. In *(AAAI-24) Bridge Program on Collaborative AI and Modeling of Humans*. AAAI, 2024.
- 2023 **Tran Nguyen Le**, Fares J. Abu-Dakka, and Ville Kyrki. Sponge: Sequence planning with deformable-on-rigid contact prediction from geometric features. In *International Conference on Robotics and Automation (ICRA 2023) Workshop on Representing and Manipulating Deformable Objects*. IEEE, 2023.
- 2021 **Tran Nguyen Le**, Jens Lundell, Fares J. Abu-Dakka, and Ville Kyrki. Towards synthesizing grasps for 3d deformable objects with physics-based simulation. In *Robotics: Science and Systems (RSS 2021) Workshop on Deformable Object Simulation in Robotics (DO-Sim)*. RSS, 2021.

Preprints

- 2024 Samuli Hynninen, **Tran Nguyen Le**, and Ville Kyrki. Identifying granular materials with force measurements. In *Submitted to 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.
- 2024 Eric Hannus, **Tran Nguyen Le**, David Blanco-Mulero, and Ville Kyrki. Adaptation to hardware constraints in imitation learning of dynamic manipulation. In *Submitted to 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2024.

Teaching Experience

- Spring, 2024 : **Visiting Lecturer**, *ELEC-E8126 - Robotic manipulation*, Aalto University.
- Spring, 2019-24 : **Teaching Assistant**, *ELEC-E8126 - Robotic manipulation*, Aalto University.
- 2019 : **Teaching Assistant**, *Mechatronics and Robot Programming*, Tampere University.
- 2015-16 : **Teaching Assistant**, *Math (Geometry and Linear Algebra, Differential and Integral Calculus), Physics, and Machine Vision*, Häme University of Applied Sciences (HAMK).

Supervising Experience

Doctoral Thesis

- 2024 **Learning Dynamic Manipulation for Deformable Objects from Human Demonstration**, Aalto University, Eric Hannus, ([Ongoing](#)).
- 2024 **Robot Learning for Manipulation of Granular Materials**, Aalto University, Samuli Hynninen, ([Ongoing](#)).

Master Thesis

- 2023 **Improving Robotic Cloth Manipulation using Optimal Grasp Pose Estimation**, Aalto University, Sachin Kundu, ([Ongoing](#)).
- 2023 **Learning Dynamic Bag Manipulation from Human Demonstration**, Aalto University, Eric Hannus, ([Link](#)).
- 2021 **A Deep-Learning-Based Approach for Stiffness Estimation of Deformable Objects**, KTH Royal Institute of Technology-Aalto University, Yang Nan, ([Link](#)).
- 2021 **Robotics Integration for a Multi-locus Transcranial Magnetic Stimulation (mTMS) System**, Aalto University, Pham Minh Duc, ([Link](#)).

Bachelor Thesis

- 2023 **Tactile Sensing in Intelligent Robotic Manipulation**, Aalto University, Luukas Korpi, ([Link](#)).
- 2022 **Robotic Grasping and Manipulation of Transparent Objects**, Aalto University, Meri Mäkelä, ([Link](#)).

2021 **Exploratory action selection to learn object properties through robot manipulation**, Czech Technical University in Prague (CTU), Andrej Kružík, ([Link](#)).

Academic Services

Editorialship

Associate Editor for 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2024).

Reviewing Service

IEEE Transactions on Robotics (T-RO).

IEEE Robotics and Automation Letters (RA-L).

IEEE International Conference on Robotics and Automation (ICRA).

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

IEEE-RAS International Conference on Humanoid Robots (Humanoids).

International Journal of Robotics Research (IJRR).

Workshop Organization

Co-organizer of *ROMADO: 4th workshop on RObotic MANipulation of Deformable Objects: beyond traditional approaches* at IROS 2024.

Honors & Awards

2/2024 **Encouragement Grant for Doctoral Research (58 grants were awarded in total 207 applicants)**, Walter Ahlström Foundation. ([Link](#))

1/2024 **Third place of Open Science Award 2023**, Aalto University. ([Link](#))

8/2020 Recipient of **Aalto ELEC Doctoral School Scholarship** for excellent progress in the doctoral studies, Aalto University.

9/2017 Recipient of **Academic Excellent Scholarship (a full tuition fee waiver and a 7000 euro annual allowance for living expenses)**, Tampere University

2012 **Second-class prized**, Provincial Computer Science Contest (high-school level)

2011 **Third-class prized**, Provincial Computer Science Contest (high-school level)

Technical Skills

Operation System: Linux, Windows

Programming Languages: Python, C++, MATLAB, Javascript

Robotics: Robot Operating System (ROS), Franka Emika Panda, Universal Robot 5 (UR5), Kuka LWR

Simulators: MuJoCo, PyBullet, NVIDIA Isaac Gym, NVIDIA Omniverse

Machine Learning: PyTorch, Tensorflow, Deep Learning, Mixture Models

Writing and Editing: LATEX, TikZ, Inkscape, GIMP

Talks

2023 **Exploring and Exploiting Object Physical Properties for Robotic Grasping and Manipulation** ([Video](#)).

Vietnamese Control Systems and Robotics Group (VNCR) Young Talents Seminar.

References

Dr. Ville Kyrki

*Associate Professor, Department of
Electrical Engineering and Automation*

Aalto University

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Dr. Roberto Calandra

*Professor, Centre for Tactile Internet
with Human-in-the-Loop (CeTI)*

TU Dresden

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More references available upon request.