

Alberta Longhini

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Division of Robotics, Perception, and Learning (RPL)

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RESEARCH STATEMENT

My research lies at the intersection between robotics and machine learning. In particular, I focus on robotic perception and manipulation of deformable objects. Currently, I'm interested in learning world models from robotic interaction and sensing, where my focus is on encoding physical properties of deformable objects into a latent representation.

Keywords: Deformable Object Manipulation · Representation Learning

SELECTED PUBLICATIONS

- [S1] Alberta Longhini, Michael C Welle, Ioanna Mitsioni, and Danica Kragic. *Textile taxonomy and classification using pulling and twisting*. In: 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE. 2021, pp. 7564–7571 [\[pdf\]](#)
- [S2] Alberta Longhini, Marco Moletta, Alfredo Reichlin, Michael C Welle, Alexander Kravberg, Yufei Wang, David Held, Zackory Erickson, and Danica Kragic. *Elastic Context: Encoding Elasticity for Data-driven Models of Textiles*. In: 2023 IEEE International Conference on Robotics and Automation (ICRA). 2023 [\[pdf\]](#)
- [S3] Alberta Longhini[†], Marco Moletta[†], Alfredo Reichlin, Michael C Welle, David Held, Zackory Erickson, and Danica Kragic. *EDO-Net: Learning Elastic Properties of Deformable Objects from Graph Dynamics*. In: 2023 IEEE International Conference on Robotics and Automation (ICRA). 2023 [\[pdf\]](#)

Note: The symbol [†] denotes shared first-authorship.

EXPERIENCE

- | | |
|--|--------------------|
| • Teaching Assistant
<i>KTH Royal Institute of Technology</i> | 2021–now
Sweden |
| • Ph.D. Candidate
<i>KTH Royal Institute of Technology</i> | 2021–now
Sweden |
| • Visiting Researcher
<i>Carnegie Mellon University</i> | 2023–now
USA |

EDUCATION

- | | |
|--|-----------|
| • Ph.D. Computer Science
<i>KTH Royal Institute of Technology, Sweden</i>
· Supervisors: Prof. Danica Kragic, Michael C. Welle, Jens Lundell | 2021–now |
| • Degree Project Abroad
<i>KTH Royal Institute of Technology, Sweden</i>
· Scholarship: Erasmus Mundus. | fall 2020 |
| • M.Sc. Automation Engineering
<i>Department of Information Engineering (DEI), University of Padua, Italy</i>
· Thesis Title: Fabric Material Classification by Combining Force Sensing and Vision.
· Supervisor: Prof. Alessandro Chiuso, Michael C. Welle, Ioanna Mitsioni. | 2018–2021 |
| • International Studies
<i>Facultat Informàtica de Barcelona (FIB), Universitat Politècnica de Catalunya (UPC), Spain</i>
· Scholarship: Erasmus Mundus. | fall 2017 |
| • B.Sc. Information Engineering
<i>Department of Information Engineering (DEI), University of Padua, Italy</i>
· Thesis Title: Experimental and computational applications of semantic networks.
· Supervisor: Prof. Leonardo Badia. | 2015–2018 |

PUBLICATIONS

Note: The symbol [†] denotes shared first-authorship.

PEER-REVIEWED CONFERENCE PAPERS (4)

- [C4] Alberta Longhini[†], Marco Moletta[†], Alfredo Reichlin, Michael C Welle, David Held, Zackory Erickson, and Danica Kragic. *EDO-Net: Learning Elastic Properties of Deformable Objects from Graph Dynamics*. In: 2023 IEEE International Conference on Robotics and Automation (ICRA). 2023 [\[pdf\]](#)
- [C3] Alberta Longhini, Marco Moletta, Alfredo Reichlin, Michael C Welle, Alexander Kravberg, Yufei Wang, David Held, Zackory Erickson, and Danica Kragic. *Elastic Context: Encoding Elasticity for Data-driven Models of Textiles*. In: 2023 IEEE International Conference on Robotics and Automation (ICRA). 2023 [\[pdf\]](#)
- [C2] Alberta Longhini, Michael C Welle, Ioanna Mitsioni, and Danica Kragic. *Textile taxonomy and classification using pulling and twisting*. In: 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS). IEEE. 2021, pp. 7564–7571 [\[pdf\]](#)
- [C1] Alberta Longhini, Michele Perbellini, Stefano Gottardi, Shenglun Yi, Hao Liu, and Mattia Zorzi. *Learning the tuned liquid damper dynamics by means of a robust EKF*. in: 2021 American Control Conference (ACC). IEEE. 2021, pp. 60–65 [\[pdf\]](#)

PEER-REVIEWED WORKSHOP PAPERS/EXTENDED ABSTRACTS (1)

WORKSHOP (1)

- [W1] Alberta Longhini, Marco Moletta, Michael C Welle, Ioanna Mitsioni, and Danica Kragic. *Perceiving and Handling Textiles: a Robotics Perspective*. In [\[pdf\]](#)

HONORS AND DISTINCTIONS

- "Mille e una lode" Award 2017
Awarded a scholarship by the University of Padova which offers 1,000 merit-based awards to excellent students in each degree programme.

TEACHING

COURSES

- Introduction to Robotics 2022–now
School of Electrical Engineering and Computer Science KTH Royal Institute of Technology
- Image Analysis and Computer Vision 2021–now
School of Electrical Engineering and Computer Science KTH Royal Institute of Technology

PROFESSIONAL SERVICE

REVIEWER

- IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2021-2022
- IEEE International Conference on Robotics and Automation (ICRA)) 2022
- IEEE International Conference on Robotics and Automation (ICRA) – RMDO Workshop 2021

REFERENCES

- Danica Kragic, KTH Royal Institute of Technology, Sweden dani@kth.se
- Michael C. Welle, KTH Royal Institute of Technology, Sweden mwelle@kth.se
- Jense Lundell, KTH Royal Institute of Technology, Sweden jelundel@kth.se