

Alberta Longhini

Ph.D. Candidate | albertal@kth.se | [albertal](#)

Division of Robotics, Perception, and Learning (RPL)

KTH Royal Institute of Technology, Stockholm, Sweden

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, which requires to encode complex physics behaviors into latent representations.

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: arXiv preprint arXiv:2209.05428, 2022 [\[pdf\]](#)
- [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: arXiv preprint arXiv:2209.08996, 2022 [\[pdf\]](#)

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

EXPERIENCE

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

EDUCATION

- | | |
|--|-----------|
| • Ph.D. Computer Science
<i>KTH Royal Institute of Technology</i> <ul style="list-style-type: none">• Thesis Title: Multimodal Learning and Control in Robotics.• Supervisors: Prof. Danica Kragic, Michael C. Welle, Jens Lundell | 2021–now |
| • M.Sc. Automation Engineering
<i>Department of Information Engineering (DEI), University of Padua, Italy</i> <ul style="list-style-type: none">• Thesis Title: Fabric Material Classification by Combining Force Sensing and Vision.• Supervisor: Prof. Alessandro Chiuso, Michael C. Welle, Ioanna Mitsioni. | 2018–2021 |
| • B.Sc. Information Engineering
<i>Department of Information Engineering (DEI), University of Padua, Italy</i> <ul style="list-style-type: none">• 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 (2)

- [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 (2)

WORKSHOP (1)

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

PREPRINTS (1)

- [P1] 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: arXiv preprint arXiv:2209.08996, 2022 [\[pdf\]](#)
- [P2] 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: arXiv preprint arXiv:2209.05428, 2022 [\[pdf\]](#)

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 |