

HAKAN GIRGIN

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PROFILE

I am currently affiliated to Swiss Cobotics Competence Center (S3C) in Biel as innovation manager. I received my Ph.D. degree in robotics at Ecole Polytechnique Fédérale de Lausanne (EPFL) and Idiap Research Institute supervised by Dr. Sylvain Calinon. My research focuses on optimization and active iterative refinement of feedback and feedforward control policies for acquiring robust and anticipatory robot skills from demonstration.

Keywords: optimal control, learning from demonstration, active learning, manipulation, human-robot collaboration

EDUCATION

Ph.D. Robotics Ecole Polytechnique Fédérale de Lausanne (EPFL)	2018 – 2023 Lausanne, Switzerland
Bachelor of Science Mechanical Engineering Bogazici University, Entrance rank: 0.13%, GPA: 3.90/4.0	2012 – 2017 Istanbul, Turkey
Exchange semester Mechanical Engineering Ecole Centrale Paris	2014 – 2015 Paris, France
Francophone Highschool Lycée de Galatasaray, Entrance rank: 0.06% GPA: 85.84/100	2007 – 2012 Istanbul, Turkey

WORK EXPERIENCE

Innovation Manager Swiss Cobotics Competence Center (S3C)	January 2024 – Biel, Switzerland
<ul style="list-style-type: none">Responsible for adaptation and innovation of collaborative base cells (CBCs) for industrial applicationsProviding cobotics consultancy services to researchers, integrators and industrial end-users of cobotsResearch on human-robot collaboration with real-time adaptive robotic skillsTrainings on cobotics and artificial intelligence in cobotics with applications in manufacturing.	
Technical Project Manager Swiss Cobotics Competence Center (S3C)	August 2023 – December 2023 Biel, Switzerland
<ul style="list-style-type: none">Responsible for collaborative base cell (CBC) project management and adaptationsOrganizing webinars, testing, training and consultancy services.	
Ph.D. Research Assistant Idiap Research Institute, Robot Learning and Interaction Group	September 2018 – May 2023 Martigny, Switzerland
<ul style="list-style-type: none">Ph.D. research supervised by Dr. Sylvain CalinonWorked on EU-Horizon2020 project CoLLaboratE	
Teaching Assistant Robotics Course, AI-Master Programme, Unidistance	2020-2022 Martigny, Switzerland
<ul style="list-style-type: none">Preparation of exercises in Jupyter notebooks with ROS and in html formats	
Bachelor Research Assistant Bogazici University Cognitive Robotics and Learning Systems Lab (CoLoRs)	2017 – 2018 Istanbul, Turkey
<ul style="list-style-type: none">Assistance to Dr. Emre Ugur in forming CoLoRs labWorked on EU-Horizon 2020 project, IMAGINE	
Product Definition Engineering Intern General Electric Aviation	2015 – 2016 Istanbul, Turkey
System Engineering Intern ALTINAY Aerospace & Advanced Technologies	2016 Istanbul, Turkey

SKILLS

Languages: Turkish (Native), English (Proficient), French (Proficient), Japanese (A2), Italian (A1), German (A1)

Programming: Python, Jupyter, MATLAB, Tensorflow, PyTorch

Software: ROS, PyBullet, KDL

PUBLICATIONS

- Learning and optimization of anticipatory feedback controllers for robot manipulation**
Hakan Girgin, Ph.D. Thesis EPFL 2023
- Demonstration-guided Optimal Control for Long-term Non-prehensile Planar Manipulation**
T. Xue, H. Girgin, T. Lembono, S. Calinon, In Proc. IEEE Intl Conf. on Robotics and Automation ICRA 2023
- Reactive Anticipatory Robot Skills with Memory**
H. Girgin, J. Jankowski, S. Calinon, International Symposium on Robotics Research ISRR 2022
- Optimization of robot configurations for motion planning in industrial riveting**
H. Girgin, T. Lembono, R. Cirligeanu, S. Calinon, In Proc. IEEE Intl Conf. on Advanced Robotics ICAR 2021
- Active Learning of Bayesian Probabilistic Movement Primitives**
T. Kulak, H. Girgin, J.-M. Odobez, S. Calinon, IEEE Robotics and Automation Letters RAL 2021
- Probabilistic Adaptive Control for Robust Behavior Imitation**
J. Jankowski, H. Girgin, S. Calinon, IEEE Robotics and Automation Letters RAL 2021
- Active Improvement of Control Policies with Bayesian Gaussian Mixture Model**
H. Girgin, E. Pignat, N. Jaquier, S. Calinon, IEEE Intl. Conf. on Intelligent Robots and Systems IROS 2020
- Generative Adversarial Training of Product of Policies for Robust and Adaptive Movement Primitives**
E. Pignat, H. Girgin, S. Calinon, In Proc. Conference on Robot Learning CoRL 2020
- Compliant Parametric Dynamic Movement Primitives**
E. Ugur, H. Girgin, Robotica, 38(3), pp. 457-474 Robotica 2020
- Associative Skill Memory Models**
H. Girgin, E. Ugur, IEEE Intl. Conf. on Intelligent Robots and Systems IROS 2018