Eugenio Chisari

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Skills

Python, C++, Matlab, ROS, PyTorch, Robotics, Autonomous Vehicles, Mobile Manipulation, Deep Reinforcement Learning, Imitation Learning, Machine Learning, Optimal Control, English, Deutsch, Italiano

Education

University of Freiburg (currently enrolled)
Ph.D. candidate in Robot Learning. Advisors: Abhinav Valada, Wolfram Burgard
focus on Imitation and Interactive Learning for mobile manipulation

ETH Zurich
Master of Science in Mechanical Engineering
focus on Robotics, Systems and Control

ETH Zurich
Bachelor of Science in Mechanical Engineering
focus on Mechatronics

Experience

ANYbotics AG | Homepage
Robotics Software Engineer Intern. Sep 2018 – Mar 2019
- Development, testing and deployment of software solutions for ANYmal, a multi-purpose legged robot.
- Worked extensively in C++ with ROS and related tools like Rviz and Gazebo in the autonomous navigation team.

Institute for Dynamic Systems and Control, ETH Zurich | Homepage
Control Systems I and II Teaching Assistant. Sep 2016 – Aug 2018
- Theory review, explanation, solution and correction of exercises for a class of second year engineering students.

Projects

Interactive Learning for Robotic Manipulation | PDF | Video
Robot Learning Lab, University of Freiburg
- Learning from human feedback used to learn an optimal manipulation policy from scratch in less than one hour.
- Our proposed framework combines both corrective and evaluative feedback from the teacher to train a stochastic policy in an asynchronous manner, and employs a dedicated mechanism to trade off human corrections with the robot's own experience.

Sim2Real Methods for Autonomous Racing | PDF | Video
Automatic Control Laboratory, ETH Zurich
- Reinforcement learning is applied to learn from scratch an optimal policy for autonomous racing.
- Applied in simulation model randomization and a policy regularization strategy to reduce the reality gap. The policy is then refined learning on the physical car. Achieved performance comparable to a model-based controller.

AMZ Driverless, Team 2018 | PDF | Video | Homepage
Trajectory and Vehicle Dynamics Control Engineer
- AMZ is the most successful team in the history of 'Formula Student Driverless', an international event where students from universities from all over the world compete with self developed autonomous race cars.
- Tackled the challenges of autonomous driving: perception, velocity estimation, SLAM, sensor synchronization, motion planning, vehicle control, continuous integration, data management, safety systems, computing hardware.
- I was responsible for the motion planning algorithm: used Delaunay triangulation to discretize the search space, applied beam search to find candidate paths and a cost function to evaluate them.

Human Motion Prediction | PDF
Machine Perception 2019 course project
- Trained a deep learning model to predict human motion data. Framed the problem as sequence-to-sequence learning.
- Used a LSTM based encoder-decoder structure trained on multi-steps predictions. To enforce continuity between prediction steps, a residual architecture is used. The model was able to perform beyond the hard baseline.

Equivalent Lap Time Minimization Strategies for a Hybrid Electric Race Car | PDF
Institute for Dynamic Systems and Control, ETH Zurich
- Designed a robust feedback control algorithm for the energy management system of a Formula 1 hybrid powertrain.
- Implemented three parallel PID controller to track fuel consumption, regenerative breaking and electric boosting of the precomputed optimal behavior. Improved compared to a previously developed tracking MPC scheme.