Eugenio Chisari

chisarie@ethz.ch | +41788210060 | Scholar | LinkedIn

Skills

Languages: English, Deutsch, Italiano
Programming: Python, C++, Matlab, ROS
Interests: Robotics, Autonomous Vehicles, Deep Reinforcement Learning, Machine Learning, Optimal Control

Education

ETH Zurich
Master of Science in Mechanical Engineering — **Sep 2018 – Aug 2020**
focus on Robotics, Systems and Control

ETH Zurich
Bachelor of Science in Mechanical Engineering — **Sep 2014 – Aug 2018**
focus on Mechatronics

Experience

ANYbotics AG
Robotics Software Engineer Intern — **Sep 2018 – Mar 2019**
- Development, testing and deployment of software solutions for ANYmal, a multi-purpose legged robot.
- Worked in the autonomous navigation team. Tasks varied from working on the simulation environment, to testing new features on the robot. Worked extensively in C++ with ROS and related tools like Rviz and Gazebo.

Institute for Dynamic Systems and Control, ETH Zurich
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

Learning from Simulation, Racing in Reality: Sim2Real Methods for Autonomous Racing | PDF | Video
Master Thesis, Automatic Control Laboratory, ETH Zurich — **Sep 2019 – Mar 2020**
- 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. The achieved performance is comparable to that achieved previously by a model-based controller.

Human Motion Prediction | PDF
Machine Perception 2019 course project — **Apr 2019 – Jun 2019**
- Given sequences of pre-recorded human motion data, trained a deep learning model to predict how a certain motion continues for several frames in the future.
- 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.

AMZ Driverless, Team 2018 | PDF | Video | Website
Trajectory and Vehicle Dynamics Control Engineer — **Sep 2017 – Aug 2018**
- 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.

Equivalent Lap Time Minimization Strategies for a Hybrid Electric Race Car | PDF
Bachelor Thesis, Institute for Dynamic Systems and Control, ETH Zurich — **May 2017 – Aug 2017**
- Designed a robust feedback control algorithm for the energy management system of a Formula 1 hybrid powertrain. The algorithm needed to comply to the regulations while delivering optimal lap time.
- 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.