

TETAM Lab 2

H. Levent Akın Research Group (Robotics)

Autonomous multi-robot systems

RoboCup (<http://www.robocup.org/>) is an international research and education initiative. Its goal is to foster artificial intelligence and robotics research by providing a standard problem where a wide range of technologies can be examined and integrated. We have been participating in the RoboCup Standard Platform League starting from RoboCup-2001 with the team Cerberus. In that league, we are working on the development of autonomous robotic soccer playing teams. Our research focus is robotic vision, multi-agent planning, self localization, and bipedal walking. The details can be found here (<http://robot.cmpe.boun.edu.tr/~cerberus/wiki/doku.php>).



Equipment

- RoboCup Standard Platform League Field.
- 5 Nao V4 robots
- 5 Nao V3.2 robots

Lab Users

- Our lab is used by the members of Cerberus team. Currently the team members are:
 - Yiğit Yıldırım (PhD Student)

- İbrahim Özcan (MS Student)
- Metehan Doyran (MS Student)
- Kadriye Yasemin Usta (MS Student)
- Mehmet Doğan (Undergraduate Student)
- Şemsi Yiğit Özgümüş (Undergraduate Student)
- Erkam Uyanık (Undergraduate Student)
- Ahmet Tekden (Undergraduate Student)

Ongoing PhD Theses

- Barış Gökçe, Transfer Learning By Subgoal Discovery in Partially Observable Dynamic Environments
- Nezh Ergin Özkucur, Semi-Supervised Map Learning and Navigation in Dynamic Environments Through Human Robot Interaction
- Okan Aşık, Scalable Multi-Agent Decision Making Algorithms for Real World Problems

Completed PhD Theses

- Tekin Meriçli, Case Based Mobile Manipulation, 2014 (Currently in National Robotics Engineering Center (NREC) of the Robotics Institute at Carnegie Mellon University)
- Barış Eker, Evolutionary Algorithms for Solving DEC-POMDP Problems, 2012.
- Kemal Kaplan, ADES: Autonomous Driver Evaluation System, 2011
- Çetin Meriçli, Multi-Resolution Model Plus Correction Paradigm for Task and Skill Refinement on Autonomous Robots, 2011, (Currently in National Robotics Engineering Center (NREC) of the Robotics Institute, Carnegie Mellon University).

Ongoing MSc Theses

- Bahar İrfan, Manipulation and Placement Planning for Loading a Dishwasher by a Robot
- Ünal Altınay, Development of a Five Degrees Of Freedom Robot Arm and a Three Finger End Effector Capable of Grasping Objects
- M. Murat Sevim Coordinating Arm and Body Movement of a Mobile Robot for Door Opening

Completed MSc Theses

- Yiğit Yıldırım, Human-Aware Robot Navigation Using the Social Force Model, 2015.

- Binnur Görer, Developing a Fitness Coach Robot for Elderly People in Assisted Living Environments, 2013.
- Okan Aşık, Using DEC-POMDP Algorithms to Solve Multi-Agent Decision Problems in Robot Soccer, 2012.
- Caner Kurtul, Road Lane and Traffic Sign Detection and Tracking, 2010.
- Barış Kurt, Imitation of Human Arm Movements by a Humanoid Robot Using Monocular Vision, 2009.
- Serhan Daniş, Development of a Multi-Sensored Autonomous Ground Vehicle, 2009.
- Can Kavaklıoğlu, Developing A Probabilistic Post Perception Module For Mobile Robotics, 2009.
- Barış Gökce Design and Implementation of a Bipedal Walking Algorithm for Nao Humanoid Robots, 2009.
- Nezh Ergin Özkucur, Design and Implementation of Multi-agent Visual-SLAM Algorithms on Autonomus Robots, 2009.
- Tekin Meriçli, Braitenberg Soccer: Learning How to Play Soccer with Primitive Behaviors, 2008.
- Derya Sezen, Implementation of Continuous POMDP Algorithms on Autonomous Robots, 2008.