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Dept. of Computer Science
Autonomous Intelligent Systems
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Nichola Abdo

Curriculum Vitae

Fields of Interest

Robot learning from demonstrations, machine learning, mobile manipulation, perception

Education

- Since April 2012 *Doctoral Candidate* at the Autonomous Intelligent Systems (AIS) Lab, Prof. Wolfram Burgard, University of Freiburg, Germany
- Oct 2009 - March 2012 *M.Sc. Computer Science*, University of Freiburg, Germany
Major: artificial intelligence and robotics
Grade: 1.0 (excellent)
Thesis title: "Inferring Symbolic Actions from Demonstrations for Solving Manipulation Tasks in the Real World"
- Sept 2001 - Feb 2006 *B.Sc. Mechatronics Engineering*, University of Jordan, Jordan
GPA: 3.83/4.0 (excellent)
Graduation project: Controlling and Programming an Unmanned Ground Vehicle

Work Experience

- Programming Proficient in C++, MATLAB, Robot Operating System (ROS)
- April - July 2015 *Intern: Working* in the perception team of Google[x]'s self-driving car project, Mountain View, USA
- Since April 2012 *Research Assistant: Autonomous Intelligent Systems*, Prof. Wolfram Burgard, University of Freiburg, Germany
Part of the DFG research unit on hybrid reasoning for intelligent systems, addressing problems related to robot learning, perception, and task planning in domestic environments.
- Jul 2006 - Sept 2009 *Junior Research and Development Engineer: King Abdullah II Design and Development Bureau (KADDB)*, Jordan

Awards

- 2015 Finalist for the best service robotics paper award at the IEEE International Conference on Robotics and Automation held in Seattle, USA
- 2009 Best nationwide undergraduate project for KAFD-funded projects, Jordan
- 2006 Award for academic excellence in mechatronics engineering, University of Jordan, Jordan

Teaching

- 2016 P. Jund, B.Sc. thesis "End-to-End Distance Metric Learning for Spatial Relations of Objects," University of Freiburg, co-supervised with Andreas Eitel and Prof. Wolfram Burgard
- 2016 O. Mees, M.Sc. thesis "Metric Learning for Generalizing Spatial Relations to New Objects," University of Freiburg, co-supervised with Mladen Mazuran and Prof. Wolfram Burgard

- 2016 C. Schöller, M.Sc. thesis "Learning Geometric Patterns for Object Placements in Domestic Environments," University of Freiburg, co-supervised with Dr. Christian Dornhege and Prof. Wolfram Burgard
- 2014 D. Saier, B.Sc. thesis, "Logo Mining Using the Web for Object Class Recognition," University of Freiburg, co-supervised with Dr. Luciano Spinello and Prof. Wolfram Burgard
- 2014 Teaching assistant, seminar on Robot Learning, University of Freiburg
- 2013 Teaching assistant, course on Foundations of Artificial Intelligence, University of Freiburg
- 2012 Teaching assistant, course on Robot Mapping, University of Freiburg
- 2012 Teaching assistant, seminar on Robot Navigation, University of Freiburg

Publications

- 2016 **The Freiburg Groceries Dataset** (P. Jund, N. Abdo, A. Eitel, W. Burgard), *arXiv preprint arXiv:1611.05799*.
- 2016 **Organizing Objects by Predicting User Preferences Through Collaborative Filtering** (N. Abdo, C. Stachniss, L. Spinello, W. Burgard), *The International Journal of Robotics Research (IJRR)*.
- 2016 **Sensor Fusion in the Epistemic Situation Calculus** (C. Schwering, T. Niemueller, G. Lakemeyer, N. Abdo, W. Burgard), *Journal of Experimental & Theoretical Artificial Intelligence (JETAI)*.
- 2015 **Robot, Organize my Shelves! Tidying up Objects by Predicting User Preferences** (N. Abdo, C. Stachniss, L. Spinello, W. Burgard), *In Proc. of The IEEE International Conference on Robotics and Automation (ICRA)*, 2015. *Finalist for best service robotics paper award.*
- 2014 **Inferring What to Imitate in Manipulation Actions by Using a Recommender System** (N. Abdo, L. Spinello, W. Burgard, and C. Stachniss), *In Proc. of The IEEE International Conference on Robotics and Automation (ICRA)*, 2014.
- 2014 **Sensor Fusion in the Epistemic Situation Calculus** (C. Schwering, T. Niemueller, G. Lakemeyer, N. Abdo, W. Burgard), *International Cognitive Robotics Workshop (CogRob)*, 2014.
- 2014 **Collaborative Filtering for Learning User Preferences for Robotic Tasks** (N. Abdo, L. Spinello, C. Stachniss, W. Burgard), *Workshop on Learning Plans with Context from Human Signals at Robotics: Science and Systems (R:SS)*, 2014.
- 2013 **Learning Manipulation Actions from a Few Demonstrations** (N. Abdo, H. Kretzschmar, L. Spinello, and C. Stachniss), *In Proc. of The IEEE International Conference of Robotics and Automation (ICRA)*, 2013.
- 2013 **Towards Deliberative Active Perception using Persistent Memory** (T. Niemueller, N. Abdo, A. Hertle, G. Lakemeyer, W. Burgard, B. Nebel), *In Proc. of the Workshop on AI-based Robotics at the International Conference on Intelligent Robots and Systems (IROS)*, 2013.
- 2012 **From Low-Level Trajectory Demonstrations to Symbolic Actions for Planning** (N. Abdo, H. Kretzschmar, and C. Stachniss), *In Proc. of the Workshop on Combining Task and Motion Planning for Real-World Applications (TAMPRA) at the International Conference on Automated Planning and Scheduling (ICAPS)*, 2012.
- 2011 **Efficient Motion Planning for Manipulation Robots in Environments with Deformable Objects** (B. Frank, C. Stachniss, N. Abdo, and W. Burgard), *In Proc. of the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2011.
- 2011 **Using Gaussian Process Regression for Efficient Motion Planning in Environments with Deformable Objects** (B. Frank, C. Stachniss, N. Abdo, and W. Burgard), *In Proc. of the AAAI-11 Workshop on Automated Action Planning for Autonomous Mobile Robots (PAMR)*, 2011.