AKANSEL COSGUN

EDUCATION----------

Ph.D. Robotics, Georgia Institute of Technology, Atlanta, GA, USA 2015
Dissertation Title: "Navigation Behavior Design and Representations for a People-Aware Mobile Robot System"
Advisor: Dr. Henrik Christensen

M.S. Computer Science, Georgia Institute of Technology, Atlanta, GA, USA 2013

B.S. Electrical Engineering, Bilkent University, Turkey 2009

EXPERIENCE----------

- **Monash University**, Melbourne, VIC, Australia
  Position: Research Fellow 1/2018 - *Present*
  - Research on Robotic Manipulation and Computer Vision

- **Savioke**, Melbourne, VIC, Australia
  Position: Senior Software Engineer 8/2017 - 1/2018

- **Honda Research Institute,** Mountain View, CA, USA
  Position: Technical Lead, System Integration Group 3/2017 - 7/2017
  - Project manager for research collaboration with Stanford University
  - Coordinated research activities of team members; supervised 8 PhD students

  Position: Research Scientist, System Integration Group 2/2016 - 3/2017
  - Research on deep reinforcement learning
  - Autonomous Driving: System architecture design for perception, localization and planning modules

- **Toyota InfoTechnology Center**, Mountain View, CA, USA
  Position: Visiting Researcher**,** Intelligent Computing Group 5/2012-8/2012, 8/2013-12/2013
  - Developed a system that guides a blind person to a goal location using vibrations applied with a haptic belt
  - Developed a socially aware and safe path planning algorithm for a mobile robot using social forces model

- **Microsoft Research**, Redmond, WA, USA
  Position: Visiting Researcher**,** Communication and Collaboration Systems 5/2011 - 8/2011
  - Developed an autonomous person following algorithm for a mobile telepresence robot

- **Georgia Institute of Technology**, Atlanta, GA, USA
  Position: Researcher, Institute for Robotics and Intelligent Machines 8/2009 - 12/2015
  - Developed a context-aware person following robot that acts according to the estimated intent of the user
  - Implemented a guide robot that takes elevator requests and guides guests to elevators
  - Tech leader for a team of MBA and law school students for an entrepreneurship program at the Business School

AWARDS & ACHIEVEMENTS----------

- National Science Foundation (NSF) National Robotics Initiative (NRI) Grant Review Panelist, Arlington VA, USA, 2017. Participated as AI/Robotics expert to review funding proposals with total worth of $7 million.
- Technological Innovation: Generating Economic Results (TI:GER) Fellowship, Scheller College of Management, Georgia Tech, USA, 2012 - 2013
- 2nd overall out of 1.7 million students, National University Entrance Exam, Turkey, 2004

SOFTWARE SKILLS----------

Programming: C/C++ (8 year experience), MATLAB (13 year experience), Python (1 year experience)
Objective C, C#, 8086 assembly (<1 year experience)
Robotics OS: Robot Operating System (ROS), RTMaps, Microsoft Robotics Studio
Machine Learning: Tensorflow, Keras
Web: HTML, CSS, Django, Google App Engine, iOS and Android app development
Version Control: github, git, svn

PATENTS----------

- Person Detection and Pose Estimation System. U.S. Patent 9,141,852
- Vibration Modality Switching System for Providing Navigation Guidance. U.S. Patent 9,202,353
- Anticipatory Robot Navigation. U.S. Patent 9,475,195
- Tactile Belt System For Providing Navigation Guidance. U.S. Patent 9,517,175
- System and Method for Automated Driving. U.S. Provisional Patent 62/452,835

REFEREED ACADEMIC PUBLICATIONS----------

- Isele, D., Rahimi, R., **Cosgun, A.**, Subramanian, K., Fujimura, K. “Navigating Occluded Intersections with Autonomous Vehicles using Deep Reinforcement Learning” In IEEE International Conference on Robotics and Automation (ICRA), 2018
- Isele, D., **Cosgun, A.** “Selective Experience Replay for Lifelong Learning” In Conference on Artificial Intelligence (AAAI), 2018
- Mukadam, M., **Cosgun, A.**, Nakhaei, A., Fujimura, K. “Tactical Decision Making for Lane Changing with Deep Reinforcement Learning” In Machine Learning for Intelligent Transportation Systems Workshop, NIPS 2017
- Parashar, P., **Cosgun, A.**, Nakhaei, A., Fujimura, K. “Modeling Preemptive Behaviors for Uncommon Hazardous Situations From Demonstrations” In Machine Learning for Intelligent Transportation Systems Workshop, NIPS 2017
- Shray, B., **Cosgun, A.**, Nakhaei, A., Fujimura, K. “Cooperative Planning for Autonomous Lane Merging” In Joint Learning in Human-Robot Collaboration Workshop, IROS, 2017
- Isele, D., **Cosgun, A.**, “To Go or Not To Go: A case for Q-learning at Unsignalized Intersections” In International Conference on Machine Learning (ICML) Autonomous Vehicles Workshop, 2017
- Isele, D., **Cosgun, A.**, “Transferring Autonomous Driving Knowledge on Simulated and Real Intersections” In International Conference on Machine Learning (ICML) Lifelong Learning Workshop, 2017
- M. Bouton, **Cosgun, A.**, and M.J. Kochenderfer. “Belief State Planning for Autonomously Navigating Urban Intersections” in Intelligent Vehicles (IV) Symposium, 2017
- **Cosgun, A.**, L. Ma, J. Chiu and others. “Towards Fully Automated Drive in Urban Environments: A Demonstration in GoMentum Station, California” in Intelligent Vehicles (IV) Symposium, 2017
- **Cosgun, A.**, Sisbot, E.A. , and Christensen, H. I. "Anticipatory Robot Path Planning in Human Environments" In International Symposium on Robot and Human Interactive Communication (RO-MAN), 2016
- **Cosgun, A.**, Ben Amor, H. B. and Christensen, H. I. “Towards Stacking Objects with a Mobile Manipulator” In Robotic Hands, Grasping and Manipulation Workshop, ICRA, 2015
- **Cosgun, A.**, Maliki, A., Demir, A., and Christensen, H. I. "Human-centric Assistive Remote Control for Co-located Mobile Robots" In Late Breaking Reports at Human-Robot Interaction (HRI), 2015
- **Cosgun, A.**, Trevor, A. J. B. and Christensen, H. I. "Did you Mean this Object?: Detecting Ambiguity in Pointing Gesture Targets" In Joint Action Workshop at Human-Robot Interaction (HRI), 2015

- **Cosgun, A.**, Sisbot, E.A., and Christensen, H. I. "Guidance for Human Navigation using a Vibro-Tactile Belt Interface and Robot-like Motion Planning" International Conference on Robotics and Automation (ICRA), 2014
- **Cosgun, A.**, Lipkin, H., and Christensen, H. I. "Price-based Optimization of Serial Robot Manipulators Under Payload and Workspace Constraints" In Task-based Optimal Design of Robots Workshop, ICRA 2014
- **Cosgun, A.**, Sisbot, E.A. , and Christensen, H. I. "Evaluation of Rotational and Directional Vibration Patterns on a Tactile Belt for Guiding Visually Impaired People" in Haptics Symposium (HAPTICS), 2014
- **Cosgun, A.**, Florencio, D., and Christensen, H. I. "Autonomous Person Following for Telepresence Robots" In IEEE International Conference on Robotics and Automation (ICRA), 2013
- **Cosgun, A.**, Bunger, M., and Christensen, H. I. "Accuracy Analysis of Skeleton Trackers for Safety in HRI" In Workshop on Safety and Comfort of Humanoid Coworker and Assistant (HUMANOIDS), 2013
- Trevor, A. J. B., Rogers, J. G., **Cosgun, A.**, and Christensen, H. I. "Interactive Object Modeling and Labeling for Service Robots" In Videos at Human-Robot Interaction (HRI), 2013
- Trevor, A. J. B., **Cosgun, A.**, Kumar, J., and Christensen, H. I. "Interactive Map Labeling for Service Robots" In Workshop on Active Semantic Perception in IROS, 2012
- **Cosgun, A.**, Hermans, T., Emeli, V., and Stilman, M. "Push Planning for Object Placement on Cluttered Table Surfaces" In IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2011