Peng Yu

Contact
yupeng@mit.edu
http://people.csail.mit.edu/yupeng
(857) 272-2593

Work Address
32 Vassar Street, Rm 32-224
Cambridge, MA 02139
(617) 253-3447

EDUCATION

Massachusetts Institute of Technology — Cambridge, MA
Ph.D in Aeronautics and Astronautics, June 2016 (expected) — GPA 5.0/5.0
Major in Autonomous Systems
Minor in Computational Sustainability and Urban Transportation
Advisor: Prof. Brian Williams
Thesis: Resolving Over-subscribed Temporal Planning Problem through Fluent Human-Robot Collaboration

Massachusetts Institute of Technology — Cambridge, MA
M.S. in Aeronautics and Astronautics, February 2013 — GPA 5.0/5.0
Major in Autonomous Systems
Advisor: Prof. Brian Williams
Thesis: Continuous Relaxation to Over-constrained Temporal Plans
Coursework includes: Autonomy and Decision Making, Cognitive Robotics, Inference and Information, Theory of Computation, Natural Language Processing.

Hong Kong University of Science and Technology — Hong Kong, China
B.Eng. in Mechanical Engineering, August 2010 — GPA 3.7/4.0

EXPERIENCE

A Dialog-based Virtual Assistant with Planning Capability — Jun 2015 - Aug 2015
Natural Language & AI Lab, Nuance Communications, Inc. — Sunnyvale, CA
• Developed a more capable virtual assistant through the integration of planning, dialog management and knowledge base systems. The assistant is able to (1) support multiple tasks, (2) handle temporal, spatial and semantic constraints, and (3) provide assistance for the users in over-subscribed situations.

A Plan Diagnosis, Execution and Monitoring System for Autonomous Underwater Vehicles — Sep 2012 - Present
Cambridge, MA
Deep Submergence Lab, Woods Hole Oceanographic Institute
• Developed an integrated planning and execution monitoring system for the operation of autonomous underwater vehicles. It implements the plan diagnosis advisor to compute alternative plans for the operators when timing constraints over-subscribe the current mission plan.

Planning Interface for Human-Robot Collaborative Tasks — Apr 2012 - Present
Model-based Embedded and Robotic System group, CSAIL, MIT — Cambridge, MA
• Developed a user interface for planning system to coordinate humans and robots in complex assembly tasks, which also implements the plan diagnosis advisor.
• Incorporated a semantic relaxation capability into the plan diagnosis advisor for generating more intuitive suggestions for resolving conflicting goals.

Plan Diagnosis Advisor for Personal Air Vehicle Sep 2010 - Aug 2013
Model-based Embedded and Robotic System group, CSAIL, MIT Cambridge, MA
• Created an efficient algorithm, Best-first Conflict-Directed Relaxation (BCDR), for the enumeration of relaxations to over-constrained conditional temporal problems.
• Developed a collaborative plan diagnosis advisor for robotic vehicles by integrating BCDR with a plan executive and a dialog manager. It can quickly resolve conflicts arise from competing goals and constraints.
• The system has been incorporated within an autonomous executive for controlling the Personal Transportation System, an intelligent robotic air taxi.

Object Detection in Clustered Environments Mar 2009 - Aug 2009
International Computer Science Institute Berkeley, CA
• Develop ROS-based stereo camera and LIDAR control packages
• Enhance tabletop object detection quality by integrating image and depth data

SELECTED PUBLICATIONS

- Peng Yu and Cheng Fang and Brian Williams, Resolving Over-constrained Probabilistic Temporal Problems through Chance Constraint Relaxation, *Proceedings of the Twenty-Ninth AAAI Conference on Artificial Intelligence (AAAI-15)*, Austin, 2015.
- Cheng Fang and Peng Yu and Brian Williams, Chance-constrained Probabilistic Simple Temporal Problems, *Proceedings of the Twenty-Eighth AAAI Conference on Artificial Intelligence (AAAI-14)*, Quebec City, 2014.
- Peng Yu and Cheng Fang and Brian Williams, Resolving Uncontrollable Conditional Temporal Problems using Continuous Relaxations, *Proceedings of the Twenty-fourth International Conference on Automated Planning and Scheduling (ICAPS-14)*, Portsmouth, 2014 (Honorable mention for Outstanding Paper Award).
- Peng Yu and Brian Williams, Continuously Relaxing Over-constrained Conditional Temporal Problems through Generalized Conflict Learning and Resolution, *Proceedings of the Twenty-third International Joint Conference on Artificial Intelligence (IJCAI-13)*, Beijing, 2013.

AWARDS

ICAPS Honorable Mention For Outstanding Paper Award	2014
HKUST School of Engineering Scholarship	2006 - 2010
HKUST Department of Mechanical Engineering Scholarship	2006 - 2010
HKUST Dean's List Award	2007 - 2010

SKILLS

Tools and Programming languages: Java, Lisp, Matlab, Python
Computer tools: Robotic Operating System (ROS), Solidworks

TEACHING AND MENTORING

Undergraduate Research Opportunity mentor, MIT MERS group	Sep 2011 - Present
Teaching assistant, MIT Principles of Autonomy (16.413)	Sep 2011 - Jan 2012

LANGUAGES

Chinese (native), English (fluent)