ECE 470
Introduction to Robotics
Lab Manual

ver 2.5

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UR3 Python - ROS Interface

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Preface

This is a set of laboratory assignments designed to complement the introductory robotics lecture taught in the College of Engineering at the University of Illinois at Urbana-Champaign. Together, the lecture and labs introduce students to robot manipulators and computer vision along with the Robot Operating System (ROS) and serve as the foundation for more advanced courses on robot dynamics, control and computer vision. The course is cross-listed in three departments (Electrical & Computer Engineering, Aerospace Engineering, and Mechanical Science & Engineering) and consequently includes students from a variety of academic backgrounds.

For success in the laboratory, each student should have completed a course in linear algebra and be comfortable with three-dimensional geometry. In addition, it is imperative that all students have completed a freshman-level course in computer programming. *MODERN ROBOTICS MECHANICS, PLANNING, AND CONTROL* (Kevin M. Lynch and Frank C. Park, 2017) is required for the lectures and will be used as a reference for many of the lab assignments. We will hereafter refer to the textbook as *MR* in this lab manual.

These laboratories are simultaneously challenging, stimulating, and enjoyable. It is the author's hope that you, the reader, share a similar experience.

Enjoy the course!