

ECE 489 Robot Dynamics and Control

Final Project, Spring, 2007

Due Dates:

1. April 27, 2007: Due date to have final project proposal approved by me.
2. May 11, 2007: Due date for final project report.

Procedure:

1. Identify a research article from the literature on any topic covered in class. You may also choose a topic not covered in class as long as it is relevant to robot control and is approved by me.
2. Submit the bibliographic information about the article to me via email before April 27th. If you would like to discuss your choice please come to my office hours or schedule a separate appointment.
3. Test the results of the article in a Matlab simulation. Use a two-link planar revolute joint robot if the article deals with manipulator control or develop a suitable model if the article deals with another system, such as a walking robot or mobile robot. You may use any physical parameters contained in the paper, or a convenient set of fictitious parameters.
4. Prepare a written report (no handwritten reports, please). Your report should summarize the contribution of the paper, present the results of your simulation including carefully labelled plots, discuss any difficulties you encountered in the control design and/or simulation, and draw conclusions. How well did the controller perform? Are the claims of the paper verified? Draw comparisons with other algorithms such as ones derived in class, if possible. **Do not exceed 6 written pages, not counting figures and plots.**
5. Submit hardcopy of the written report and email me the Matlab files of your simulation.

How to Find a Suitable Article:

1. Examine the list of references that I have put on the class webpage. Each paper, in turn, contains numerous references. In fact, I chose these papers because they are surveys or tutorials and therefore contain an extensive list of references. Look up these references and check the references contained in them, etc.
2. Go to <http://www.ieeexplore.ieee.org>. IEEEEXplore contains all IEEE journals and conferences. You can search by keyword, author, etc. and you can examine specific journals and conferences. Some IEEE journals and conferences to look at include:
 - (a) Transactions on Automatic Control
 - (b) Transactions on Control Systems Technology
 - (c) Transactions on Robotics and Automation

- (d) Transactions on Systems, Man, and Cybernetics
 - (e) International Conference on Robotics and Automation
 - (f) Conference on Decision and Control
 - (g) American Control Conference
 - (h) Conference on Control Applications
3. Go to the library to browse non-IEEE publications, such as
- (a) International Journal of Robotics Research
 - (b) Journal of Robotic Systems
 - (c) Robotica
4. Use any other tools available such as Google.
5. Ask me. You'd better convince me that you've made a good effort to search for interesting papers before asking me, however.