

ALGORITHMIC MOTION PLANNING

ASEN 5254 SECTIONS 1/1B

FALL 2022

LECTURE INFORMATION

Tuesday and Thursday 2:30-3:45pm

Room: AERO 114

Video recording will be made available after each lecture on the course canvas page

INSTRUCTOR

Morteza Lahijanian

Office: AES 267

Email: Morteza.Lahijanian@colorado.edu

Office hour: Wednesday noon-1pm and by appointment

COURSE DESCRIPTION

Algorithmic motion planning research

community in the last 30 years. We will examine approaches based on potential

GRADING AND EVALUATION

Classwork consists of some homework exercises worth 30%, a mid-term exam (mini project) worth 30%, and a substantive project worth 40% of the grade.

COURSE TEXTBOOKS

Required:

- *Principles of Robot Motion: Theory, Algorithms, and Implementations*
H. Choset, K.M. Lynch, S. Hutchinson, G. Kantor, W. Burgard, L.E. Kavraki and S. Thrun
MIT Press
2005
e-book through CU library: <https://libraries.colorado.edu/record=b9646308-S3>
- *Planning Algorithms*
Steven LaValle
Cambridge University Press
2006
Free download: <http://lavalle.pl/planning/>

Additional Resources:

- *Probabilistic Robotics*
S. Thrun, W. Burgard, and D. Fox
MIT Press
2005
- *Robot Motion Planning*
Jean-

- Sampling-based motion planning algorithms
- Motion planning with kinodynamic constraints
- Optimal motion planning algorithms
- Task and motion planning
- Motion planning under uncertainty

Cainty

If you feel ill and think you might have COVID-19, if you have tested positive for COVID-19, or if you are unvaccinated or partially vaccinated and have been in close contact with someone who has COVID-19, you should stay home and follow the further guidance of the Public Health Office (contacttracing@colorado.edu). If you are fully vaccinated and have been in close contact with someone who has COVID-19, you do not need to stay home; rather, you should self-monitor for symptoms and follow the further guidance of the Public Health Office (contacttracing@colorado.edu).

ACCOMMODATION FOR DISABILITIES

If you qualify for accommodations because of a disability, please submit your accommodation letter from Disability Services to your faculty member in a timely manner so that your needs can be addressed. Disability Services determines accommodations based on documented disabilities in the academic environment. Information on requesting accommodations is located on the [Disability Services website](#). Contact Disability Services at 303-492-8671 or dsinfo@colorado.edu for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#)

SEXUAL M