

# 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

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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*

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

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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](mailto: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](mailto: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](mailto:dsinfo@colorado.edu) for further assistance. If you have a temporary medical condition, see [Temporary Medical Conditions](#)

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