


# Full title of the paper (Capitalized)

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**Simple Summary:** A Simple summary goes here.

**Abstract:** A single paragraph of about 200 words maximum. For research articles, abstracts should give a pertinent overview of the work. We strongly encourage authors to use the following style of structured abstracts, but without headings: 1) Background: Place the question addressed in a broad context and highlight the purpose of the study; 2) Methods: Describe briefly the main methods or treatments applied; 3) Results: Summarize the article's main findings; and 4) Conclusion: Indicate the main conclusions or interpretations. The abstract should be an objective representation of the article, it must not contain results which are not presented and substantiated in the main text and should not exaggerate the main conclusions.

**Keywords:** keyword 1; keyword 2; keyword 3 (list three to ten pertinent keywords specific to the article, yet reasonably common within the subject discipline.).

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comment	hypothesis	supfile
commentary	interestingimage	technicalnote
communication	obituary	viewpoint
conferenceproceedings	opinion	guidelines
correction	projectreport	registeredreport
conferencereport	reply	tutorial

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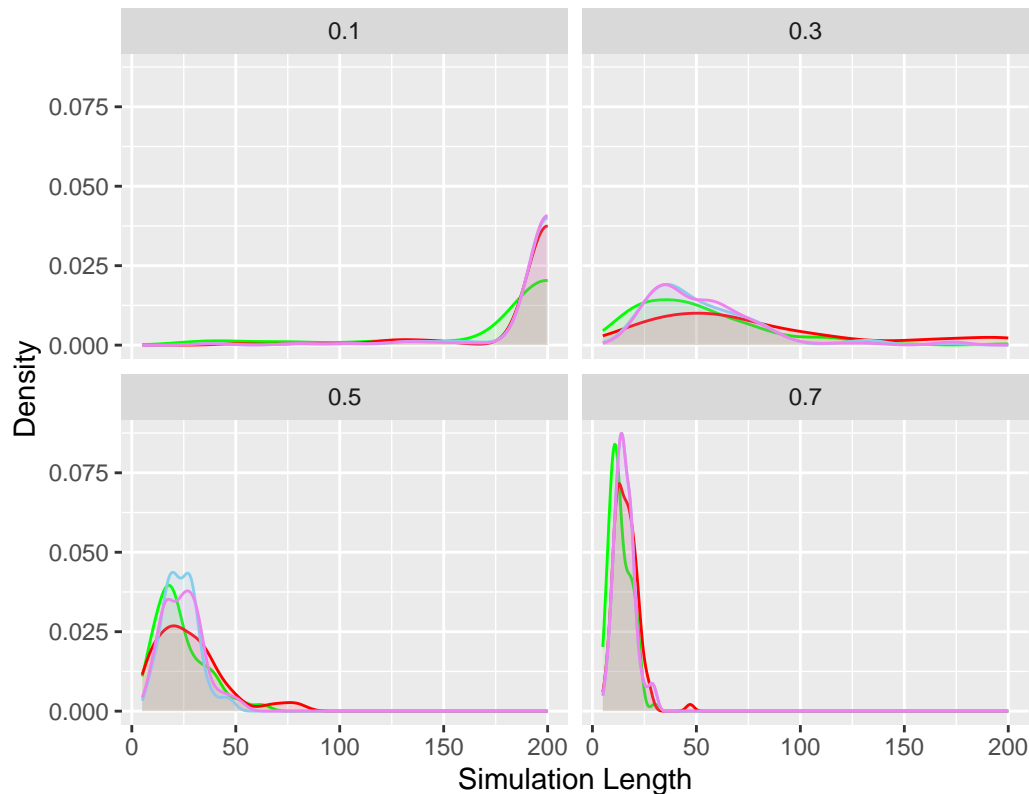
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1. Introduction

2. Results

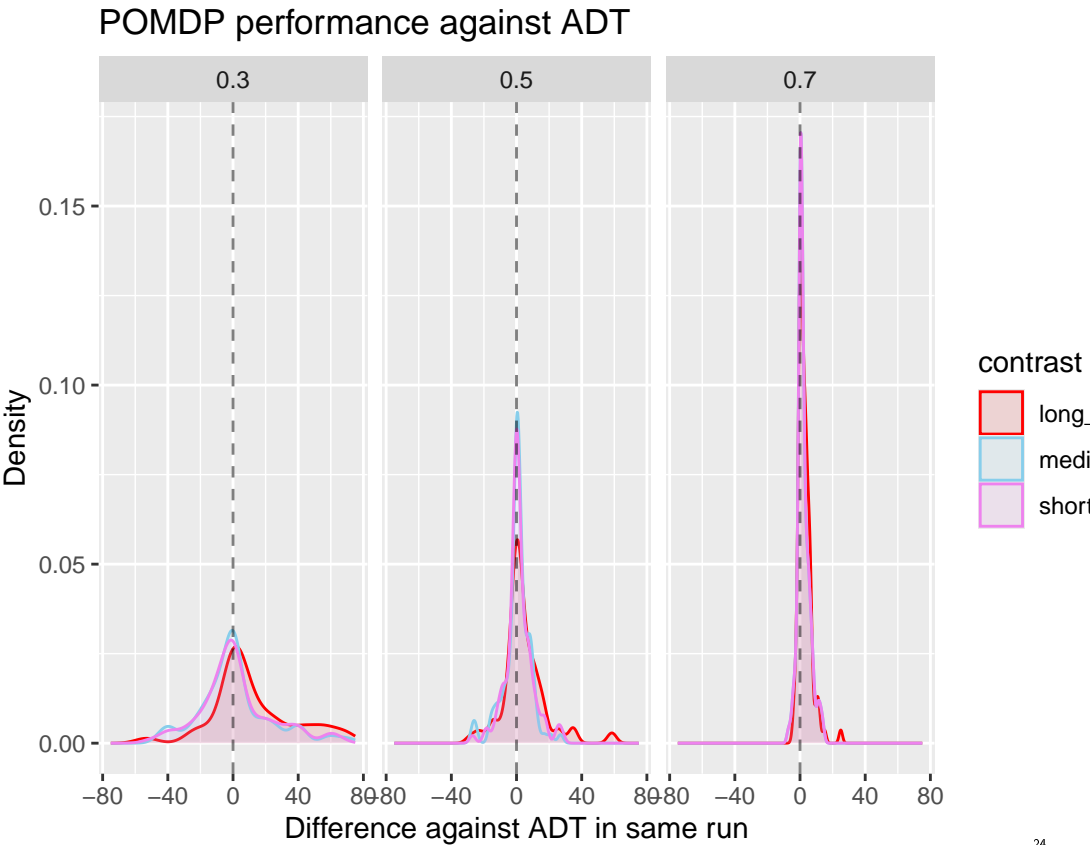
2.1. Performance of POMDPs vs ADT heuristic

POMDP performance against ADT

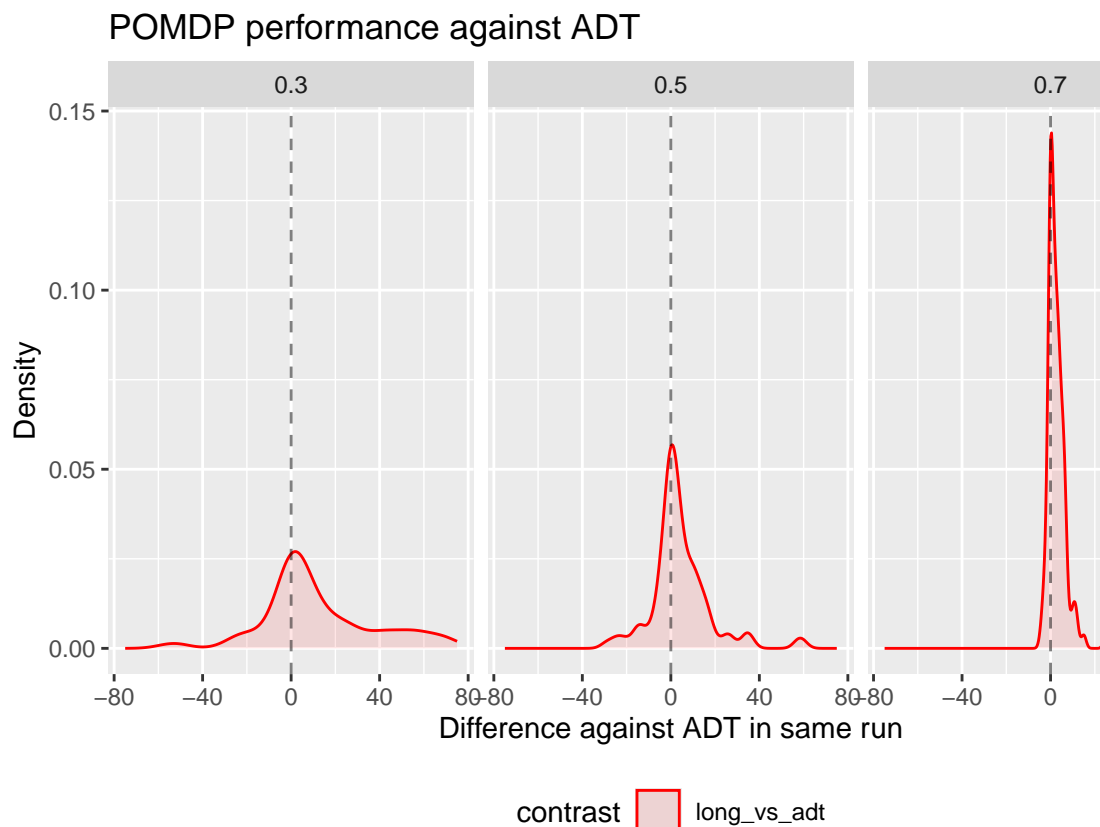


Four different simulation runs each consisting of 100 runs, of maximally 200 timesteps for different rates of tumor growth (respectively 1. .3, .5, and .7 probability of increasing the tumor state) . On each run the the outcomes on each of the potential 200 random variables are generated and each strategy is therefore tested on a the same enviroment. On the lowest tumor growth rate almost all the runs reach maximal length.

Contrasts against ADT-performance for growth rate .3, .5 and .7 are plotted. .1 is omitted since it appears that maximal perforamnce was achieved for each policy horizon of the POMPD strategies.



Two interpretations emerge from the contrasted simulation lengths. As the the growth rate increases, the POMDP seems to run for longer than the specific instance of the range bounded approach. It also seems that longer policy horizon seems beneficial. When the tumor state had .7 probability of increasing each timestep, the longest POMPD with the longest policy horizon performed as follows.



At more aggressive cancer rates, the simulation shows consistently better performance of the POMDP model. It

2.2. Capabilities

2.2.1. Learning underlying hidden state

A probable cause of the performance increase seen in the POMDP

2.2.2. Beliefs, current/future and uncertainty is accessible

2.2.3. Actions Can be balanced using FEP

2.2.4. FEP components are accesible

3. Discussion

3.1. Does it work for other sorts of medical planning

3.2. Would longer policy search be better

3.3. Only one range bound

3.4. Future Research

3.4.1. Continuous state space or binning illness

3.4.2. Learning the transition parameters

3.4.3. searching policy space better

3.4.4. other fep models

**Supplementary Materials:** The following supporting information can be downloaded at: <https://www.mdpi.com/article/10.3390/1010000/s1>, Figure S1: title; Table S1: title; Video S1: title.

**Author Contributions:** For research articles with several authors, a short paragraph specifying their individual contributions must be provided. The following statements should be used "X.X. and Y.Y. conceive and designed the experiments; X.X. performed the experiments; X.X. and Y.Y. analyzed the data; W.W. contributed reagents/materials/analysis tools; Y.Y. wrote the paper." Authorship must be limited to those who have contributed substantially to the work reported.

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## Abbreviations

The following abbreviations are used in this manuscript:

MDPI	Multidisciplinary Digital Publishing Institute
DOAJ	Directory of open access journals
TLA	Three letter acronym
LD	linear dichroism

## Appendix D

### Appendix D.1

The appendix is an optional section that can contain details and data supplemental to the main text. For example, explanations of experimental details that would disrupt the flow of the main text, but nonetheless remain crucial to understanding and reproducing

the research shown; figures of replicates for experiments of which representative data is

shown in the main text can be added here if brief, or as Supplementary data. Mathematical

proofs of results not central to the paper can be added as an appendix.

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**Appendix E**

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All appendix sections must be cited in the main text. In the appendixes, Figures,

Tables, etc. should be labeled starting with 'A', e.g., Figure A1, Figure A2, etc.

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