# Generative Models for Sepsis

# David Wihl, Xuefeng Peng, Yi Ding Harvard University

{davidwihl,xpeng}@g.harvard.edu, yid095@mail.harvard.edu

### **Abstract**

Abstract goes here

### Introduction

Intro goes here

#### 1. Related Work

Related Work goes here

1.1. Classic Physiological Simulators

stuff

1.2. Generative Models in RL

stuff

1.3. Sepsis RL

more stuff

## 2. System Design

Design

# 3. Validation

How did we validate?

# 4. Advanced RL Implementation

### 5. Discussion

discuss stuff

- 5.1. Validation Methodology
- 5.2. Limitations

limitations

### 6. Future Work

Crystal ball goes here...

### Conclusion

Conclusion

## Acknowledgements

Special thanks to everyone

### References

- M. G. Bellemare, Y. Naddaf, J. Veness, M. Bowling, The Arcade Learning Environment: An Evaluation Platform for General Agents, CoRR abs/1207.4708, URL http://arxiv.org/abs/1207.4708.
- M. G. Bellemare, Y. Naddaf, J. Veness, M. Bowling, The Arcade Learning Environment: An Evaluation Platform for General Agents, Journal of Artificial Intelligence Research 47 (2013) 253–279.
- D. P. Bertsekas, J. N. Tsitsiklis, Dynamic programming and optimal control, Athena Scientific Belmont, MA, 1995.
- G. Brockman, V. Cheung, L. Pettersson, J. Schneider, J. Schulman, J. Tang, W. Zaremba, OpenAI Gym, 2016.
- A. Geramifard, C. Dann, R. H. Klein, W. Dabney, J. P. How, RLPy: A Value-Function-Based Reinforcement Learning Framework for Education and Research, Journal of Machine Learning Research 16 (2015) 1573–1578, URL http://jmlr.org/papers/v16/geramifard15a.html.
- V. Mnih, K. Kavukcuoglu, D. Silver, A. Graves, I. Antonoglou, D. Wierstra, M. A. Riedmiller, Playing Atari with Deep Reinforcement Learning, CoRR abs/1312.5602, URL http://arxiv.org/abs/1312.5602.
- E. Todorov, T. Erez, Y. Tassa, MuJoCo: A physics engine for model-based control, 2012 IEEE/RSJ International Conference on Intelligent Robots and Systems (2012) 5026–5033.
- M. Vanhulsel, D. Janssens, G. Wets, K. Vanhoof, Simulation of sequential data: An enhanced reinforcement learning approach, Expert Systems with Applications 36 (4) (2009) 8032–8039.

R. Zheng, C. Liu, Q. Guo, A decision-making method for autonomous vehicles based on simulation and reinforcement learning, in: Machine Learning and Cybernetics (ICMLC), 2013 International Conference on, vol. 1, IEEE, 362– 369, 2013.