

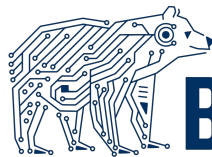
# Stabilizing Contrastive RL: Techniques for Robotic Goal Reaching from Offline Data

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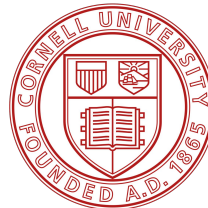


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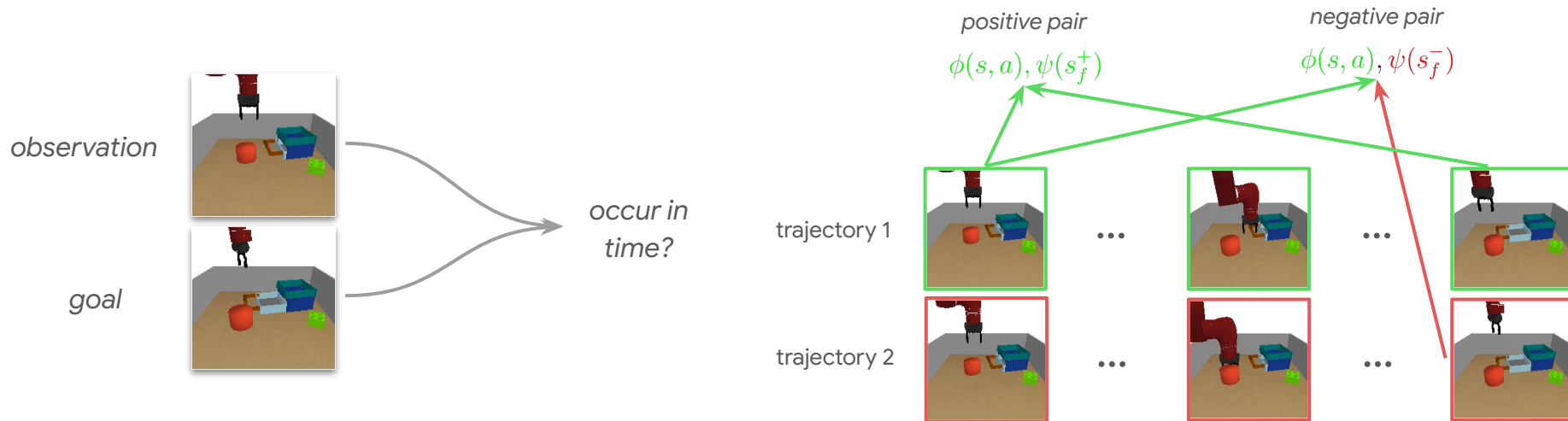
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# Reward labeling is challenging for long-horizon offline RL tasks.



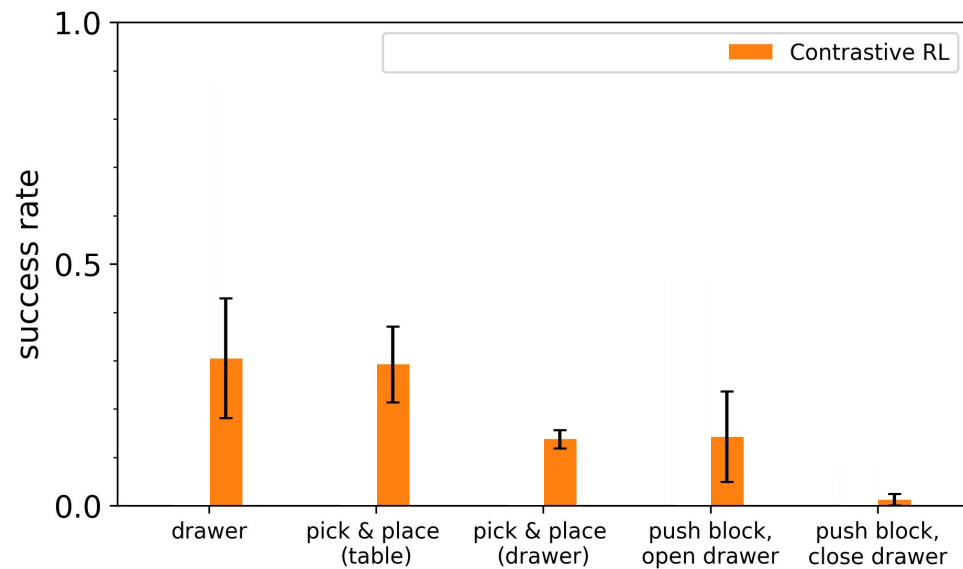
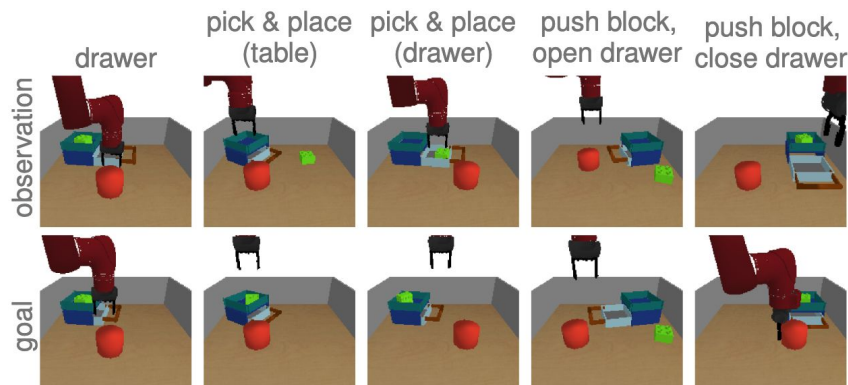
# Prior contrastive method avoids reward engineering.



[1] Eysenbach et al. Contrastive Learning as Goal-Conditioned Reinforcement Learning. 2022.

[2] Eysenbach et al. C-Learning: Learning to Reach Goal via Recursive Classification. 2020.

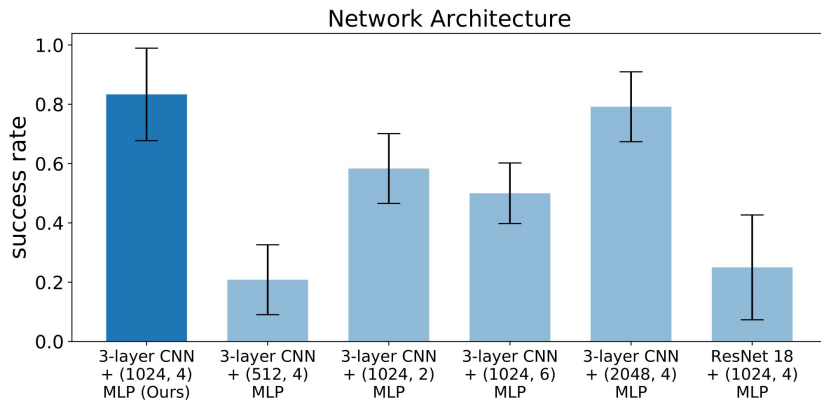
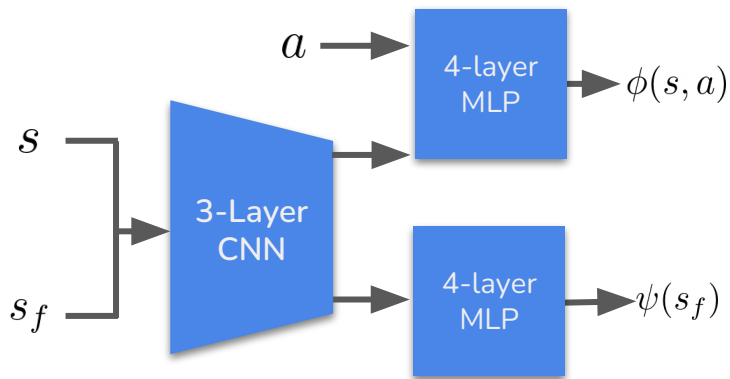
# Prior contrastive method fails to scale.



# Five design decisions that significantly boost performance

## Design decisions

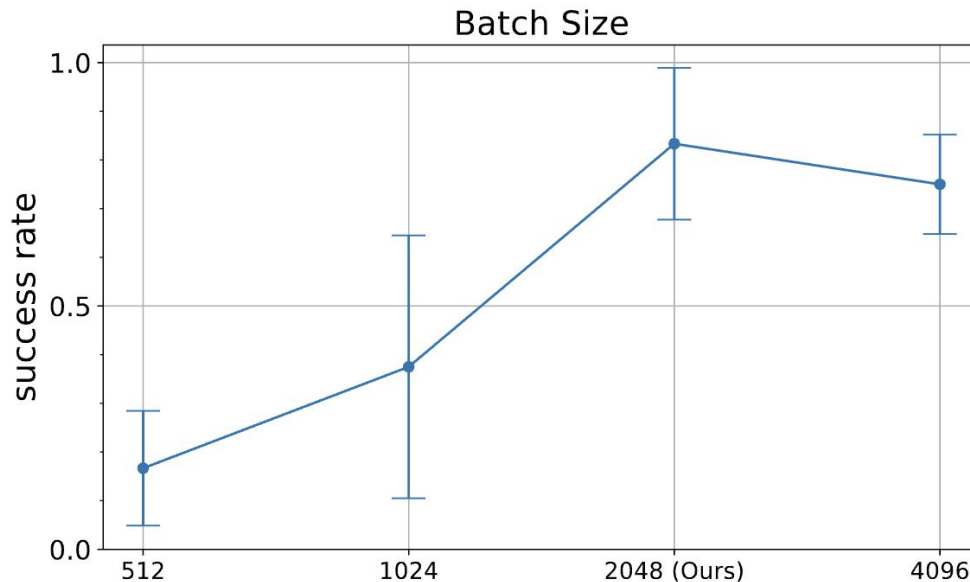
1. **Network architecture**
2. Batch size
3. Layer normalization
4. Data augmentation
5. Cold initialization



# Five design decisions that significantly boost performance

## Design decisions

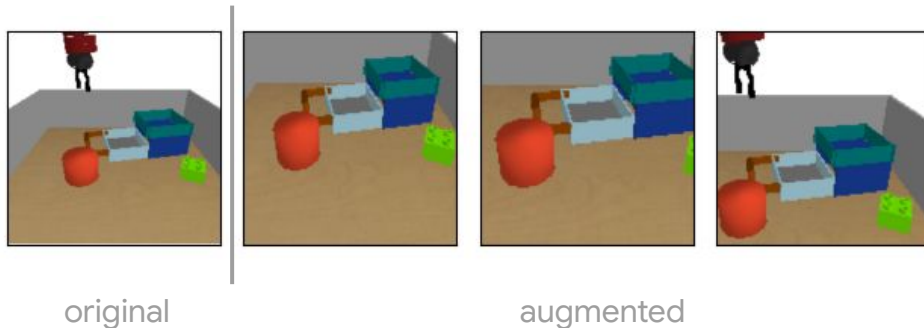
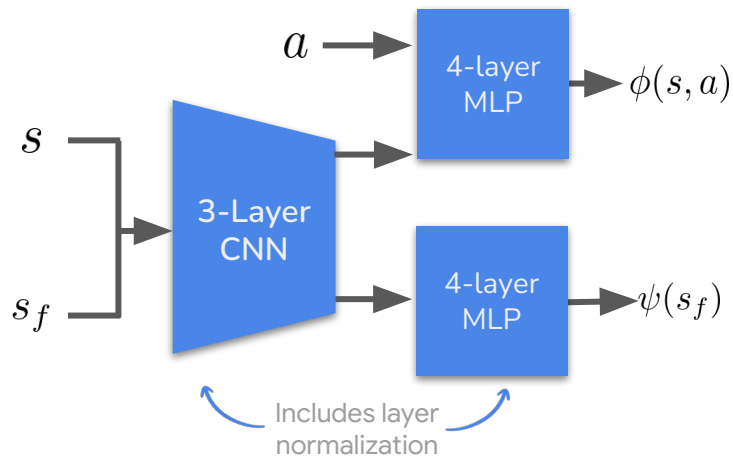
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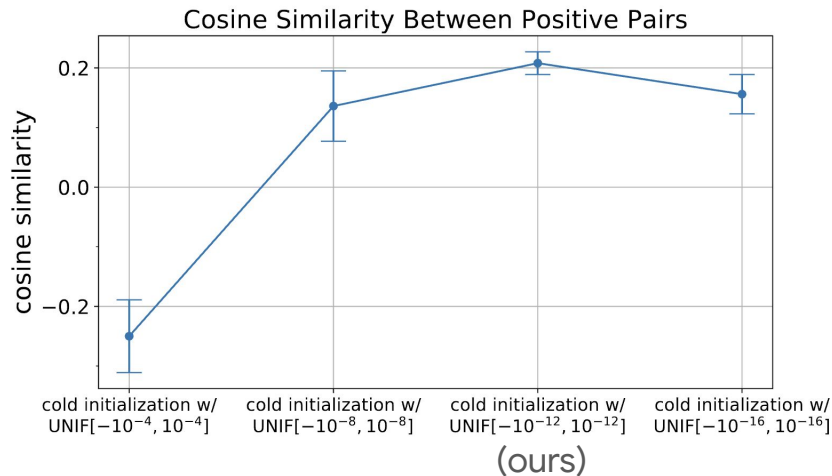
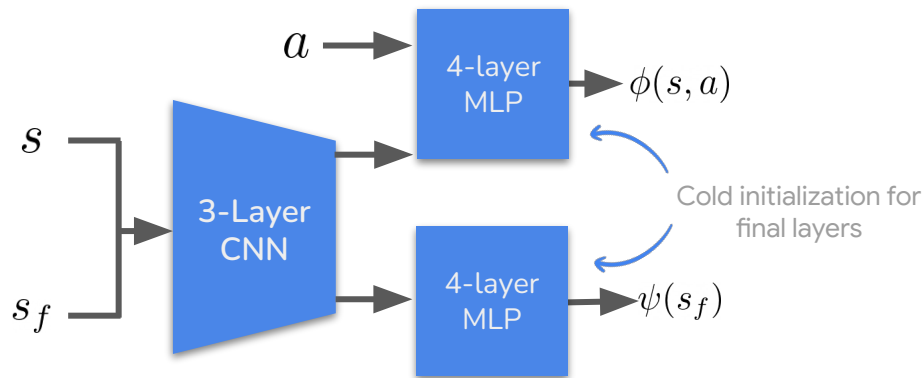
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# Five design decisions that significantly boost performance

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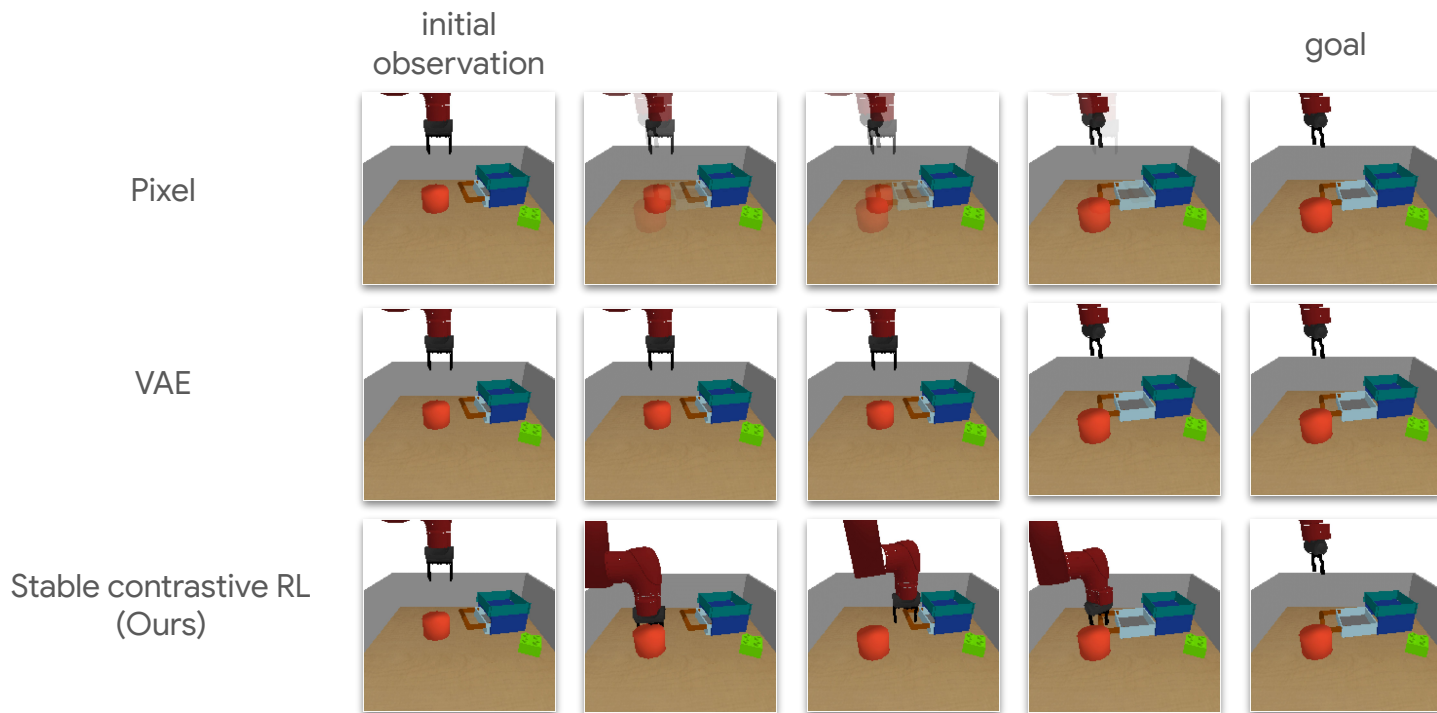


# Solving robotic tasks

*pick and place spoon*



Our learned representations capture both contents and causal relationships.

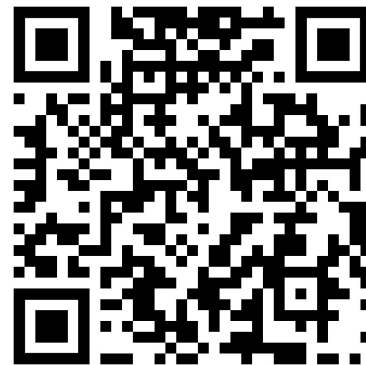


# Future directions

Checkout the poster to learn more

- How about even larger size of dataset?
- How to mitigate overfitting for large scale vision backbones
- Is there any structure of the learned representation in theory?
- What about tasks beyond goal-reaching?

Video, code, and paper!



[https://chongyi-zheng.github.io/stable\\_contrastive\\_rl](https://chongyi-zheng.github.io/stable_contrastive_rl)