# Accelerated Diffusion Models for Protein Structure Generation

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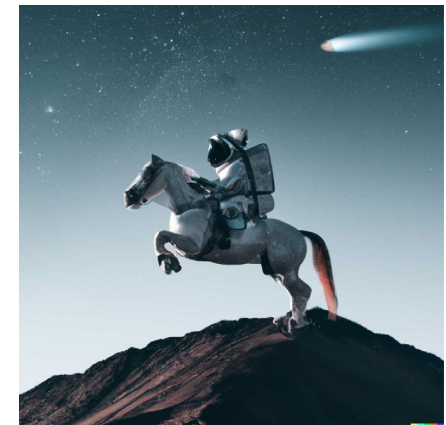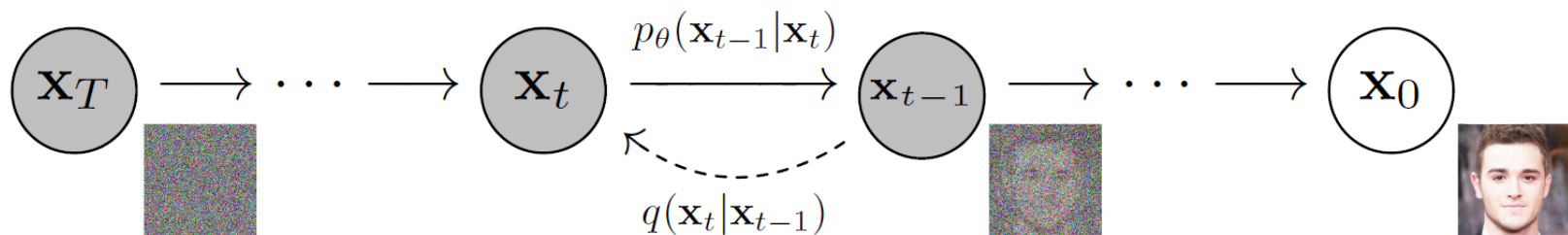{linhaowei, lssastar, wangyuzhe_ccme}@pku.edu.cn

# Outline

- Background
  - Applications of diffusion models
  - Algorithm sketch
  - Bottleneck of diffusion models

- Previous Work
  - Forward process
  - Reverse process
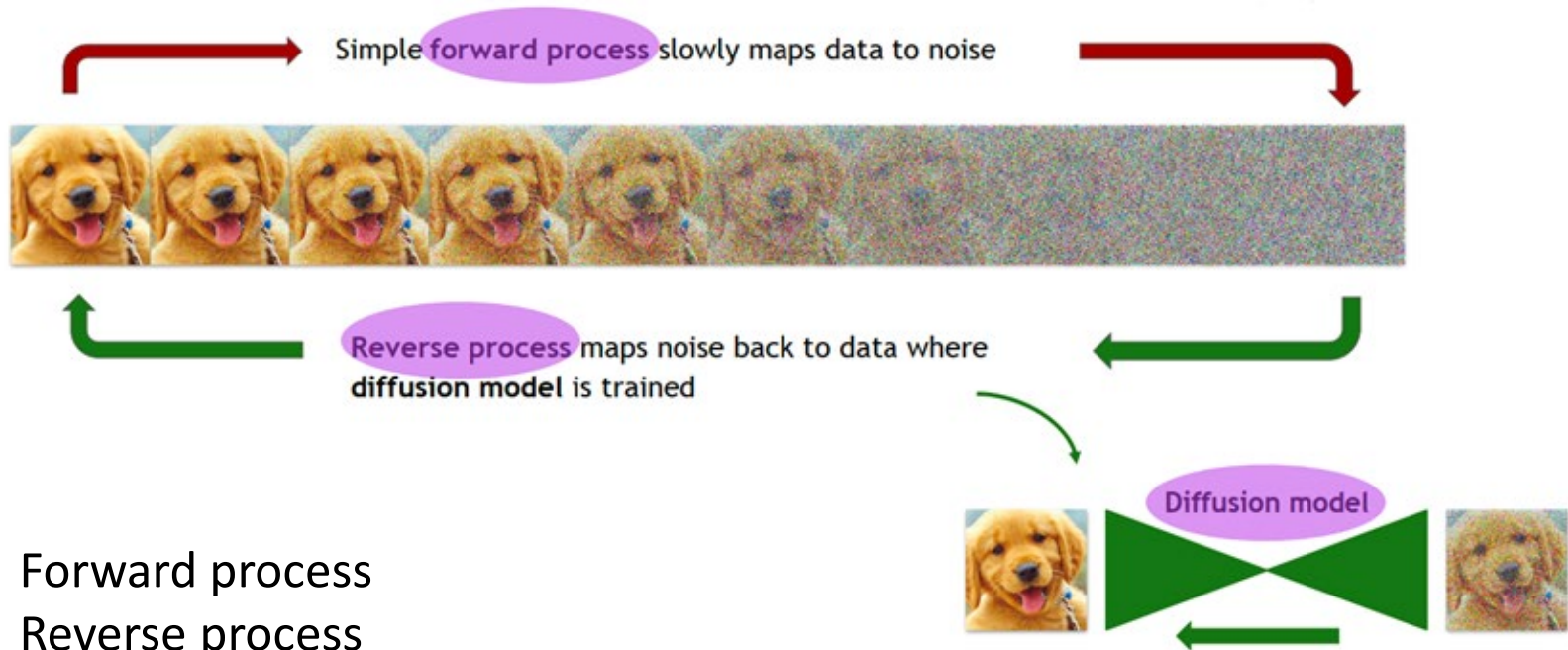  - Advanced modelling

- Our Schedule

# Background

https://openai.com/dall-e-2/
Ho J, Jain A, Abbeel P. Denoising diffusion probabilistic models[J]. Advances in Neural Information Processing Systems, 2020, 33: 6840-6851.
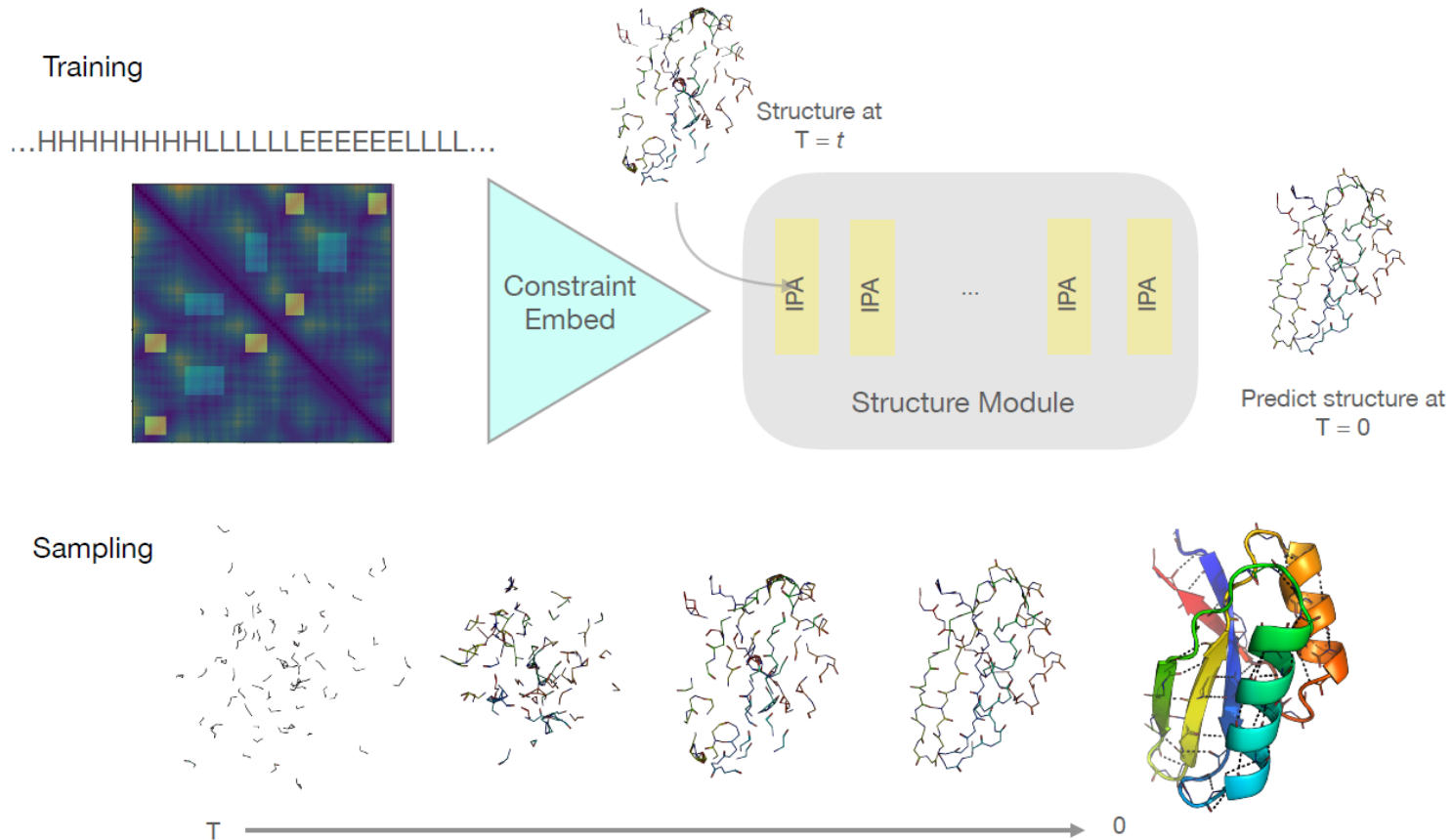
# Previous Work



Simple **forward process** slowly maps data to noise

**Reverse process** maps noise back to data where **diffusion model** is trained

Diffusion model

- Forward process
- Reverse process
- Advanced modelling

Ho J, Chan W, Saharia C, et al. Imagen Video: High Definition Video Generation with Diffusion Models[J]. arXiv preprint arXiv:2210.02303, 2022.

# Our Schedule

- Accelerated diffusion models for protein structure generation

Anand N, Achim T. Protein Structure and Sequence Generation with Equivariant Denoising Diffusion Probabilistic Models[J]. arXiv preprint arXiv:2205.15019, 2022.

# Thank you

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