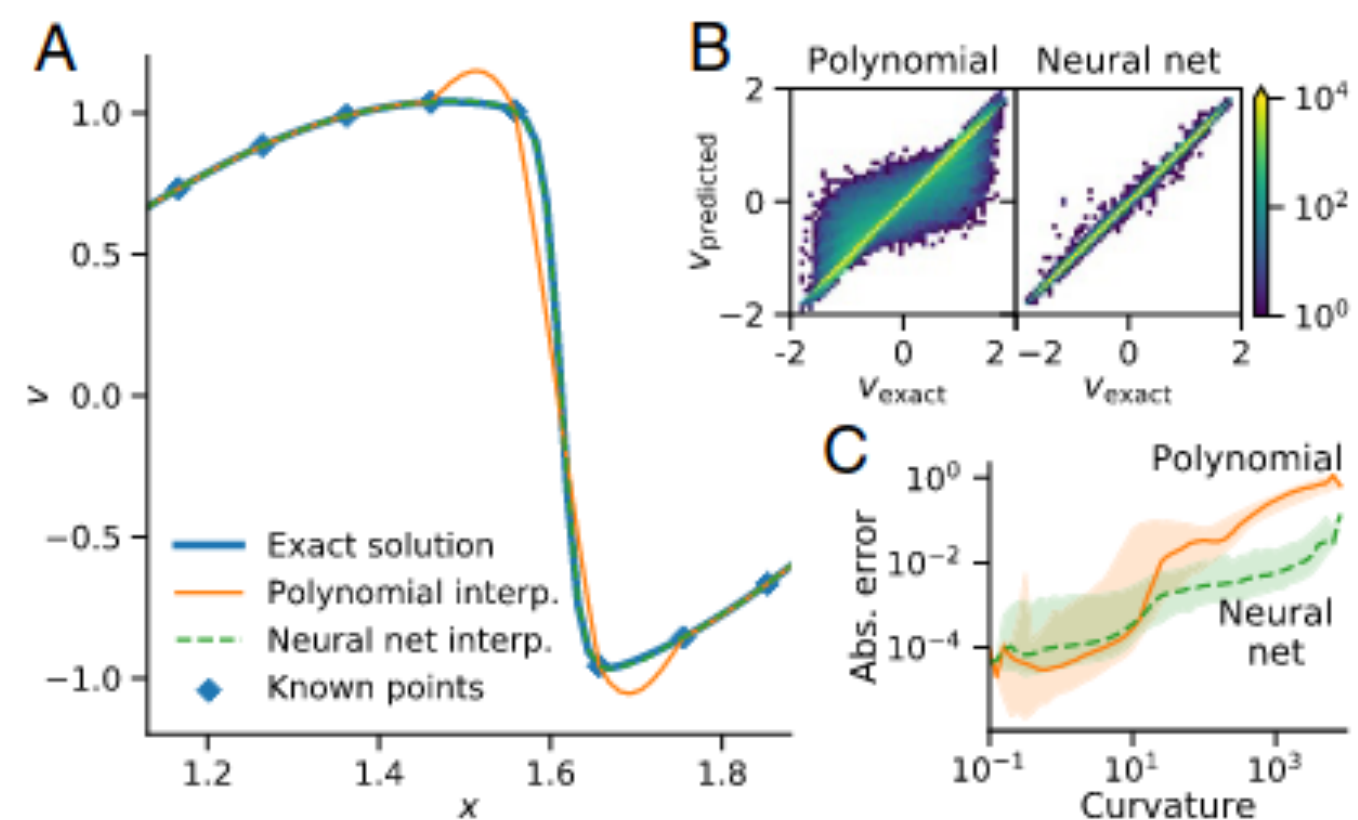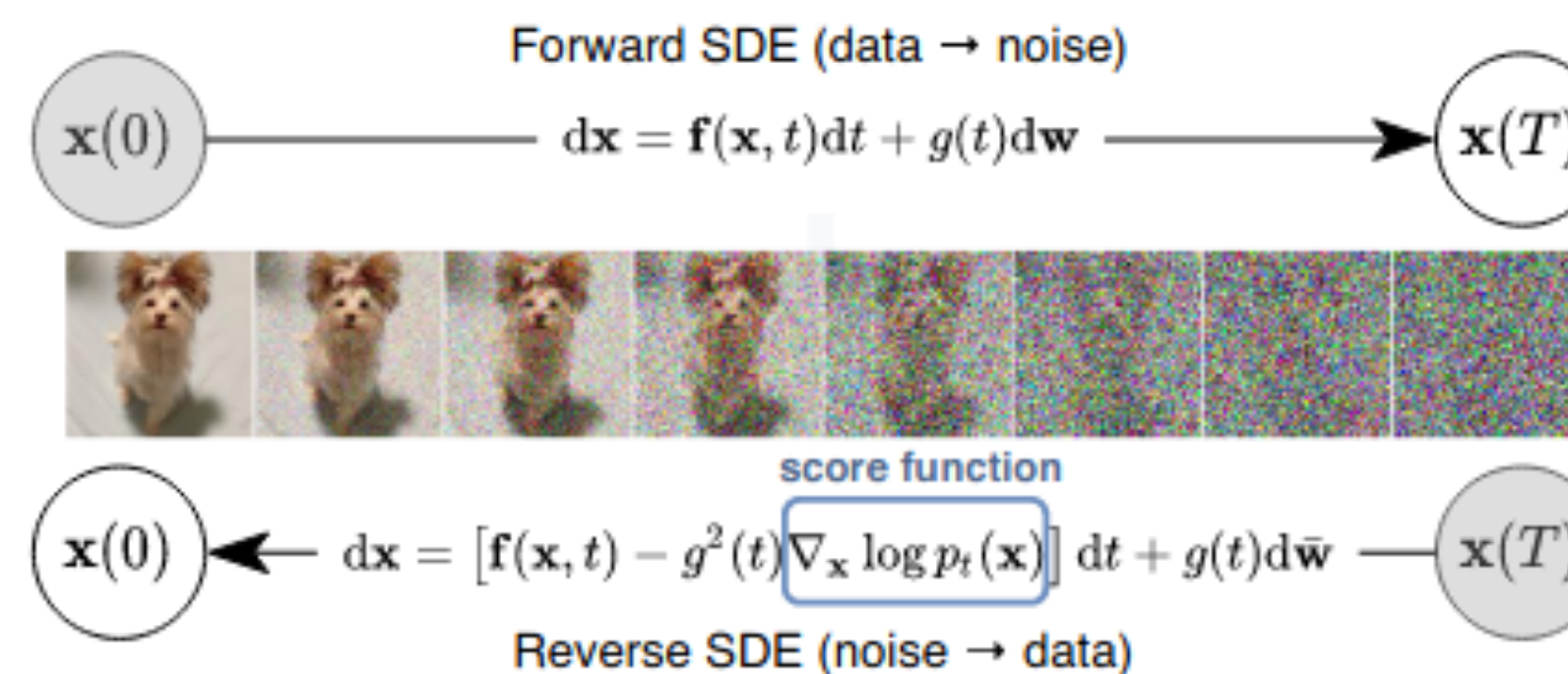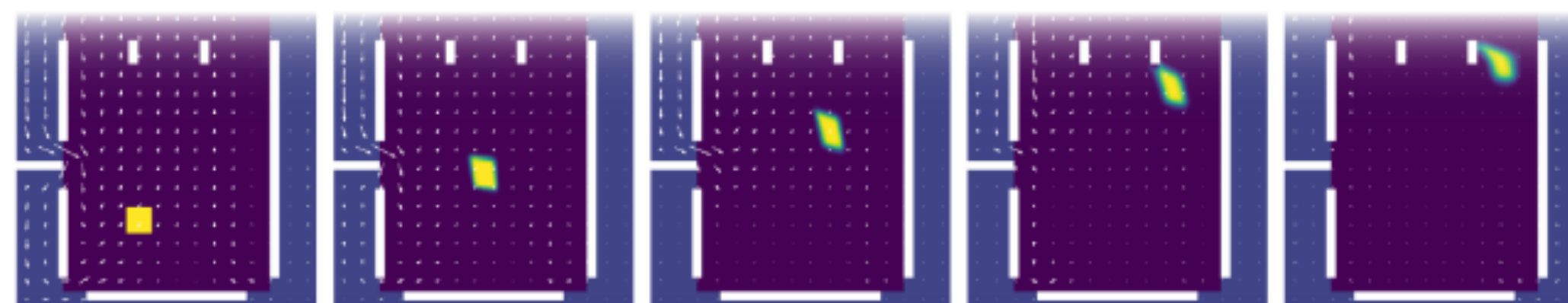# Introduction Lecture

Seminar - Deep Learning in Physics
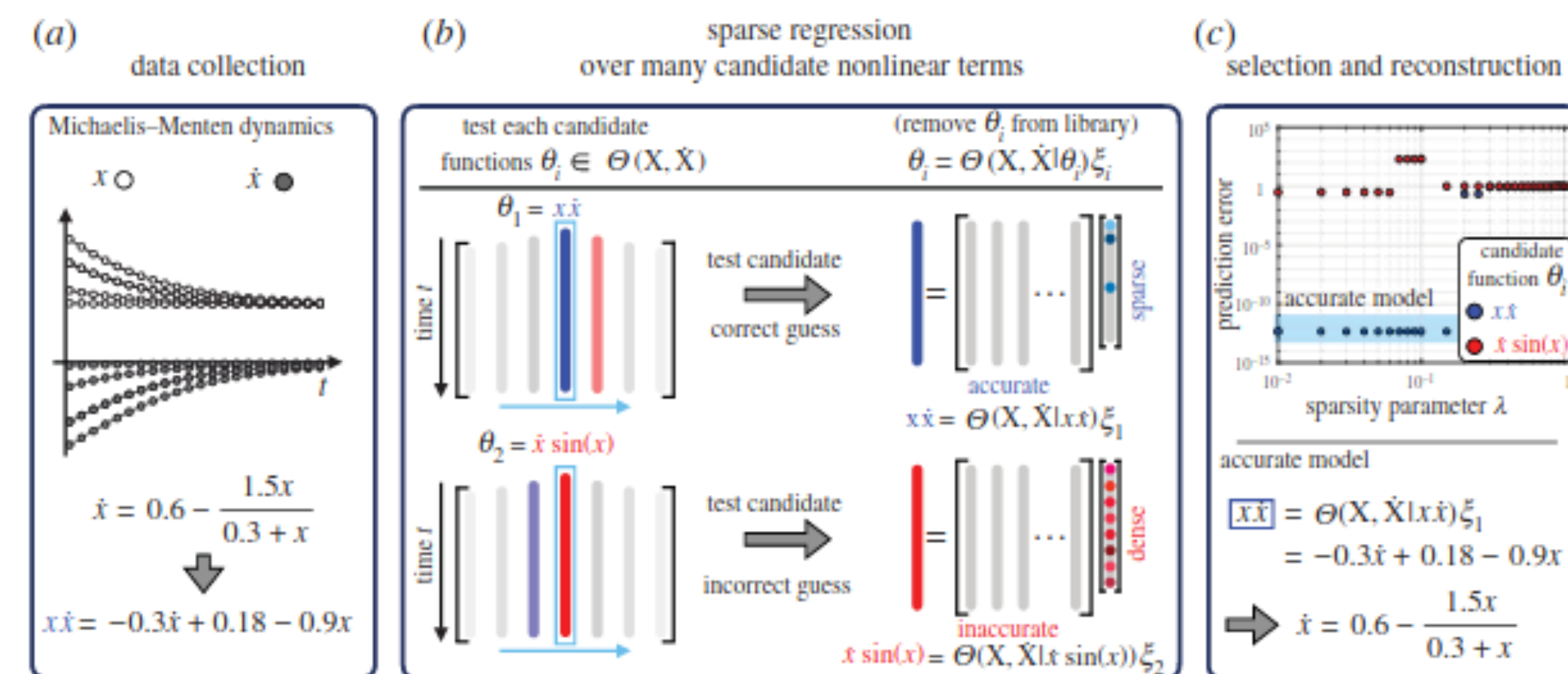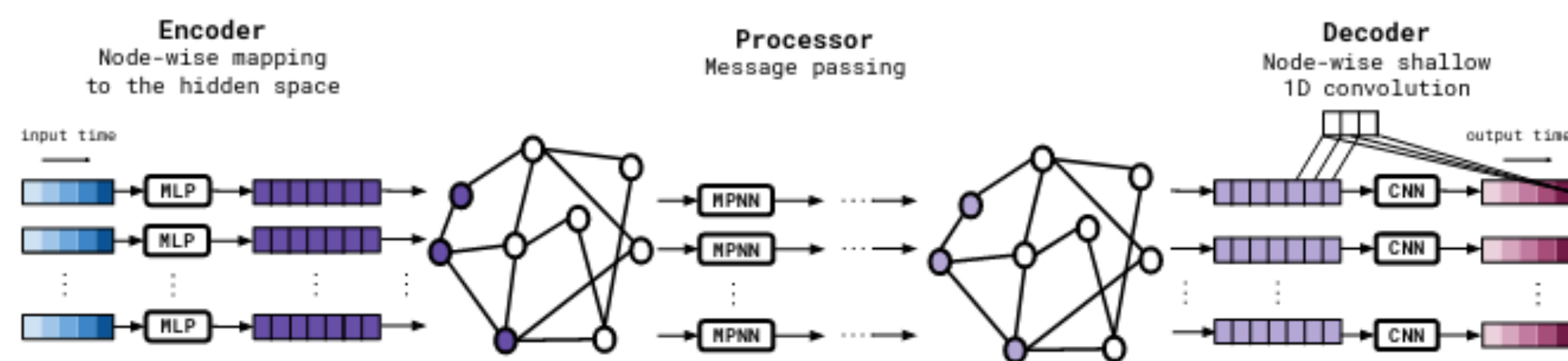
18th October 2023

Bar-Sinai et al. (2019)

Song et al. (2021)

Holl et al. (2020)

Kaheman et al. (2020)

Brandstetter et al. (2023)
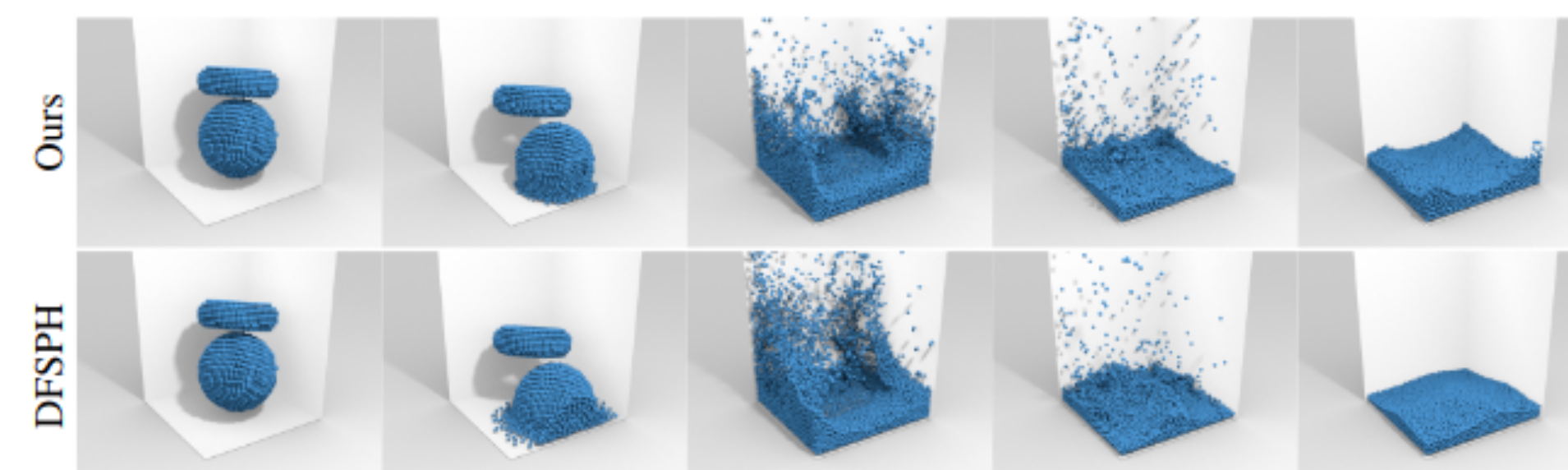
Ummenhofer et al. (2020)

About us

Qiang Liu

Benjamin Holzschuh

Nils Thuerey

About you
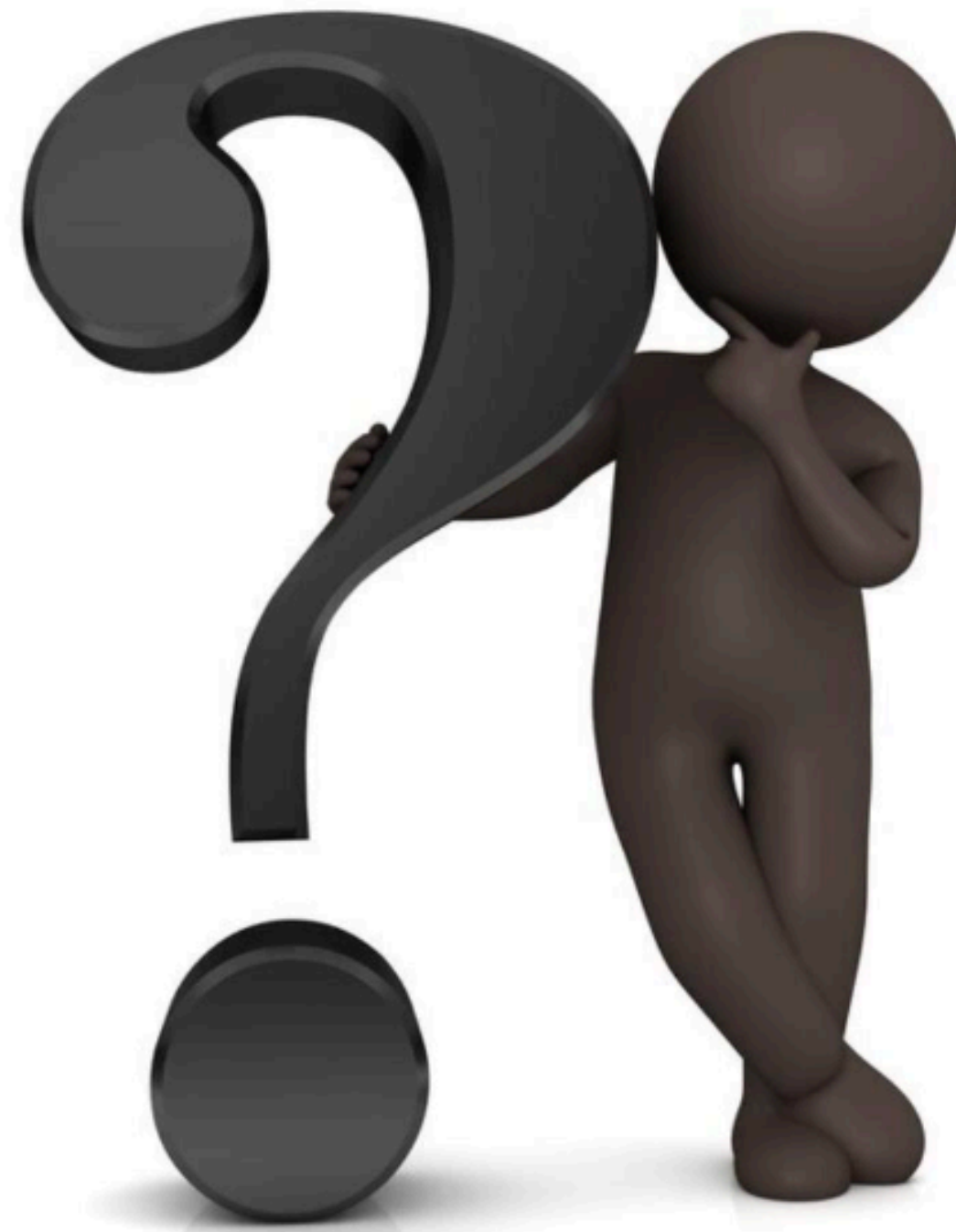
About this seminar

- Recent research in deep learning in physics

  - Be familiar with the basics of machine learning

  - Know about the structure of neural networks

- Independent investigations

  - Critical analysis and evaluation of the topic and related work

- Develop writing and presentation skills

Deep Learning resources

- Book: Hastie et al., The Elements of Statistical Learning

- Book/Online: Goodfellow et al., Deep Learning

- Online: Nielsen, Neural Networks and Deep Learning

- Online: Thuerey et al. Physics-based Deep Learning

Report

- Maximum 4 pages excluding references

- ACM SIGGRAPH TOG format (acmtog) <u>precompiled latex template</u>

- Due two weeks **after** your talk (Tuesday by 23:59)

- Guidlines

  - Summary of the paper

  - Add own reasoning about the work

  - For example: comparisons, pros and cons, limitations, improvements, future work

Slides

- Any slide layout you like, prepare slides as PDD

  - Ensure readability (colors, images and font size)

  - Avoid using too much text

  - Highly encouraged to do some paper-related experiments and show some results in the presentation

- Send semi-final slides one week before your talk, otherwise talk will be cancelled

  - We will take a look at the slides and give feedback

  - Revise slides until presentation

- Send final slides and final report two weeks after your presentation to us

Presentation

- Present your topic in English

- 25-30 minutes of presentation

- 5-10 minutes of discussion

- Actively participate in the discussion for other presentations

- Test your setup (laptop/connection to projector) before giving your presentation!

- Tips for a good presentation: DocTUM: How to give a great scientific talk

Additional info

- TUMonline registration will happen automatically eventually, no manual registration required

- Advisor

  - Contact any time you have questions related to the seminar or your paper

  - Feedback for semi-final slides (and semi-final report if you want)

- Attendance

  - Missing one session is allowed, if you let us know in advance and write a short summary of the papers (ca. 1 page) in your own words

  - Missing another session means failing the seminar (special rules for severe issues as appropriate)

Any questions?