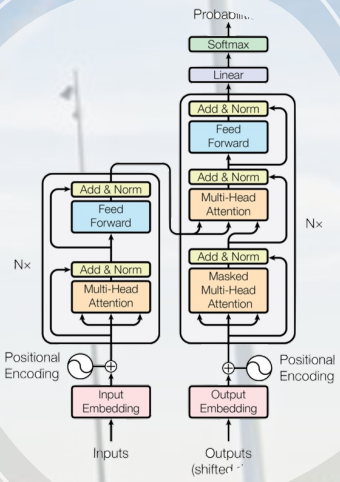
Master Artificial Intelligence

UvA Alumnus

September 1, 2022

Phillip Lippe



Overview


About Me
Master AI at UvA
Opportunities after Master
General tips

My Journey so far

DHBW Duale Hochschule Baden-Württemberg

Mercedes-Benz

Bachelor Computer Science

- Cooperative study program with Mercedes Benz (Germany)
- Focus on autonomous driving

Master Artificial Intelligence

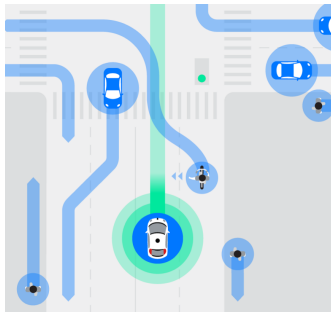
- Focus on NLP and generative ML

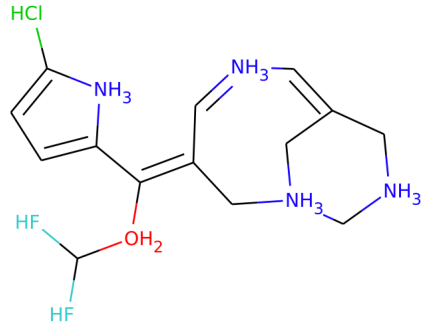
Qualcomm

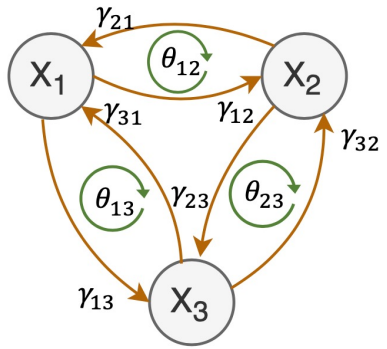
PhD AI/ML

- Cooperation Qualcomm/UvA
- Causal ML

2015 2018 2020 2022

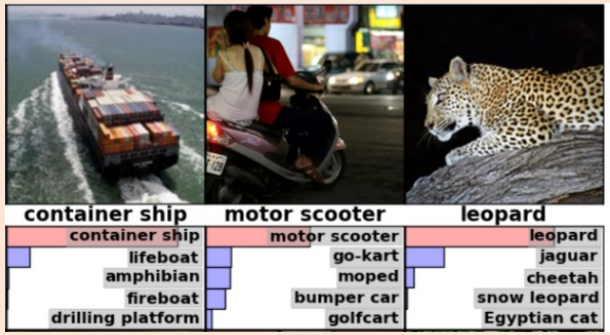






AI's Journey so far (simplified)

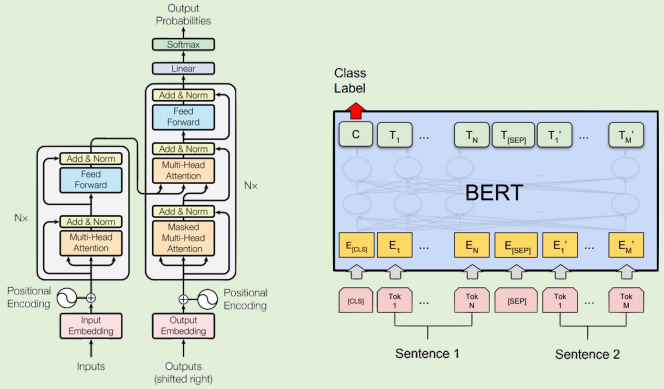
2015



ImageNet classification

- GoogleNet
- ResNet
- …

2018



Language Models

- BERT
- GPT
- …

2020

2022

Multimodal Generative Models

- Imagen
- DALL-E
- …

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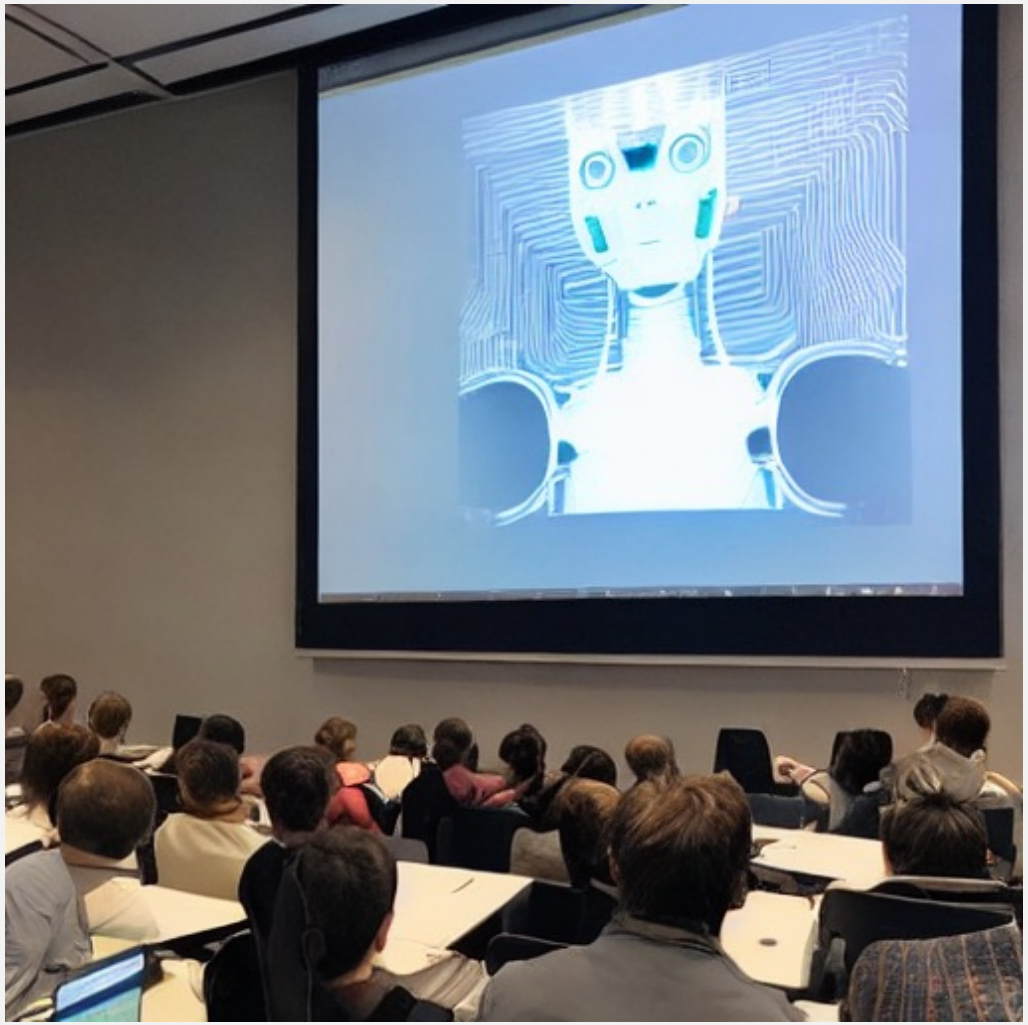
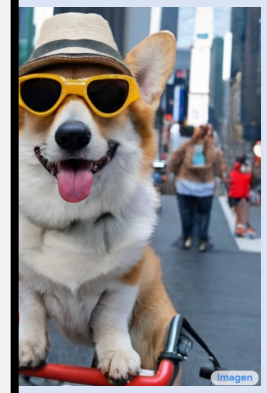


Prompt: An introduction lecture to Artificial Intelligence at the University of Amsterdam
Model: StableDiffusion, v1.4

2022



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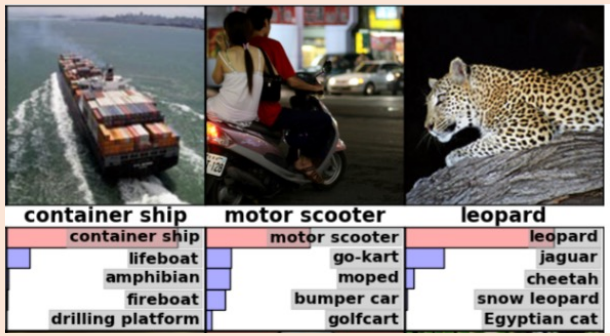

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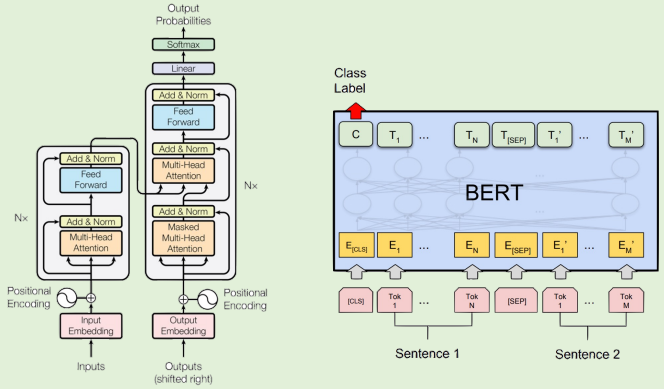

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AI in Amsterdam

ellis
European Laboratory for Learning and Intelligent Systems

ICAI

AMLAB
Amsterdam
Machine Learning Lab

IRLab

UvA - BOSCH
DELTA LAB

AIR
THE AI FOR RETAIL LAB
AMSTERDAM

Mercury
machine learning lab

POP MART

computer
vision lab

ILLC

QUVA
Deep Vision Lab

CAIL

aimlab
artificial intelligence
for medical imaging lab

Published as a conference paper at ICLR 2015

ADAM: A METHOD FOR STOCHASTIC OPTIMIZATION

Diederik P. Kingma*
University of Amsterdam, OpenAI
dpkingma@openai.com

Jimmy Lei Ba*
University of Toronto

Auto-Encoding Variational Bayes

Diederik P. Kingma
Machine Learning Group
Universiteit van Amsterdam

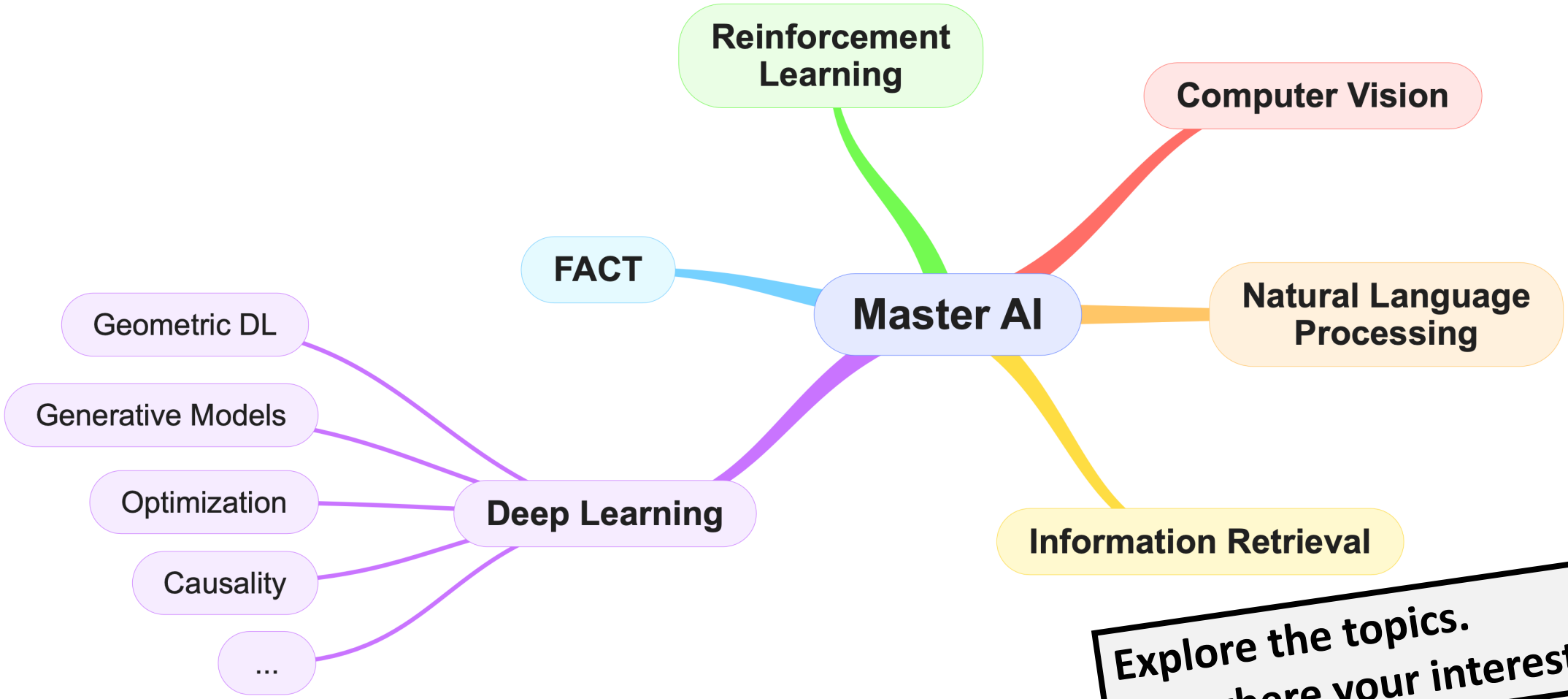
Max Welling
Machine Learning Group
Universiteit van Amsterdam

Group Equivariant Convolutional Networks

Taco S. Cohen
University of Amsterdam
T.S.COHEN@UVA.NL

Max Welling
University of Amsterdam
M.WELLING@UVA.NL

Breadth of topics in the master

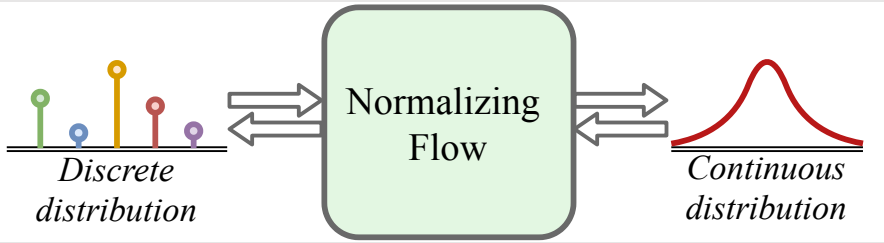


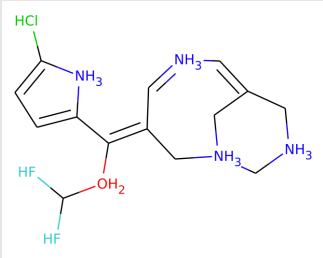
Projects along my master

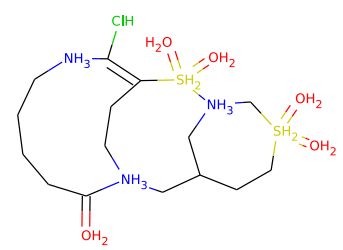
(Part-time) Research Assistant
Nov 2018 – Jun 2019
Artificial Intelligence for high-order automated theorem proving.

(Full/Part-time) Research Assistant
Jul 2019 – Dec 2019
Research in dialogue systems to conduct human-like conversation with NNs.
Publication: Simultaneously Improving Utility and User Experience in Dialogue Systems

Master Thesis – Categorical Normalizing Flows
Nov 2019 – Jul 2020
Research in invertible generative models for discrete data







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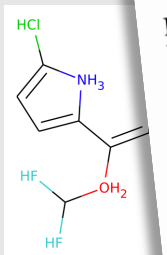
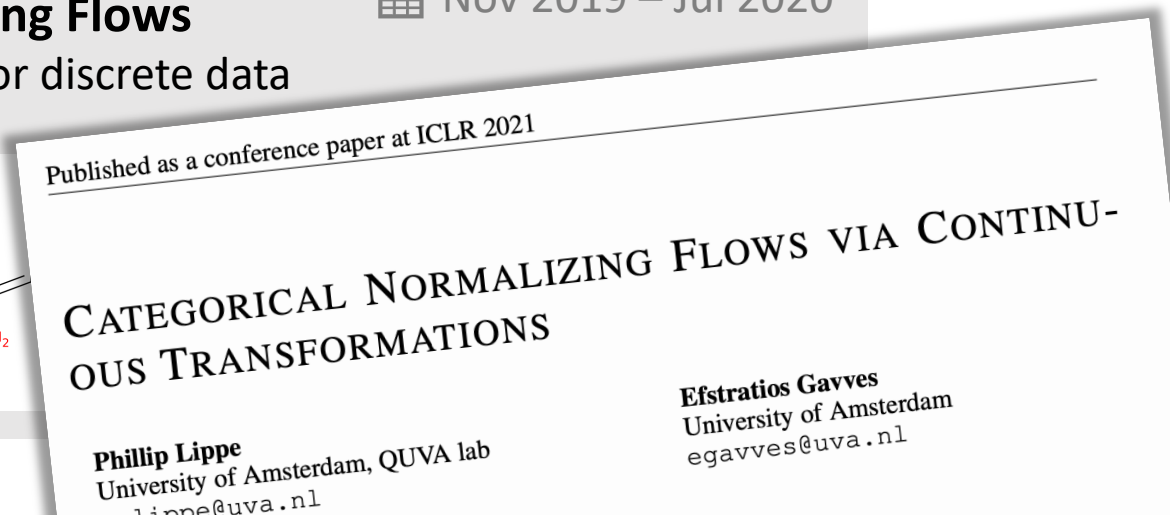



Published as a conference paper at ICLR 2021

CATEGORICAL NORMALIZING FLOWS VIA CONTINUOUS TRANSFORMATIONS

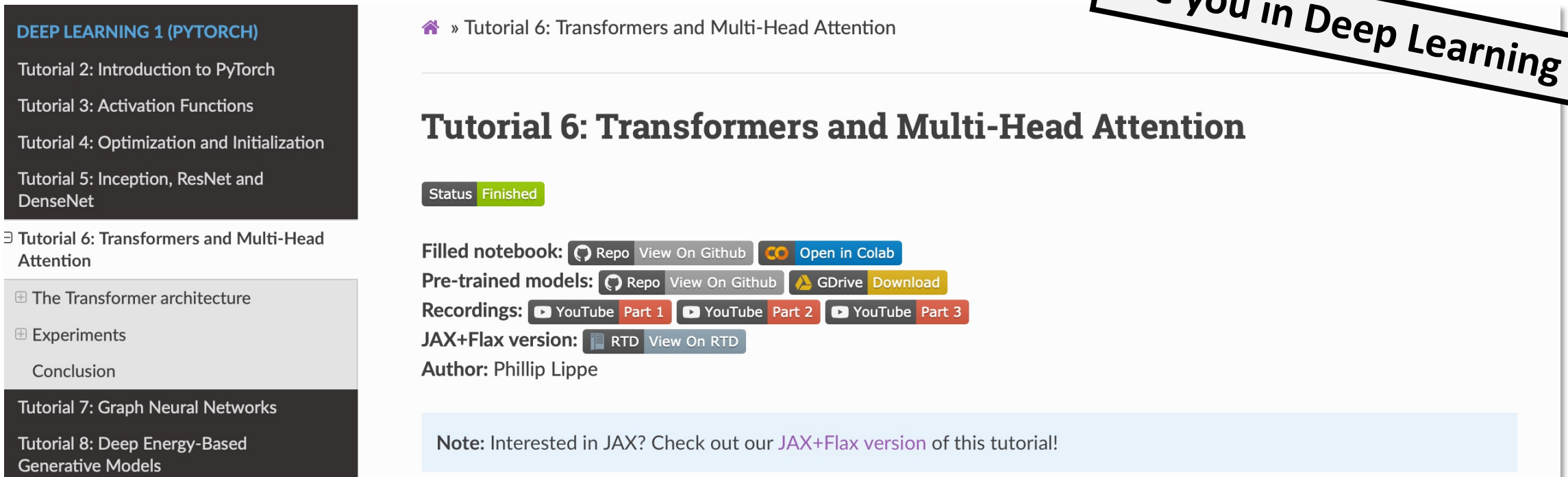
Phillip Lippe
University of Amsterdam, QUVA lab

Efstratios Gavves
University of Amsterdam
egavves@uva.nl

Teaching

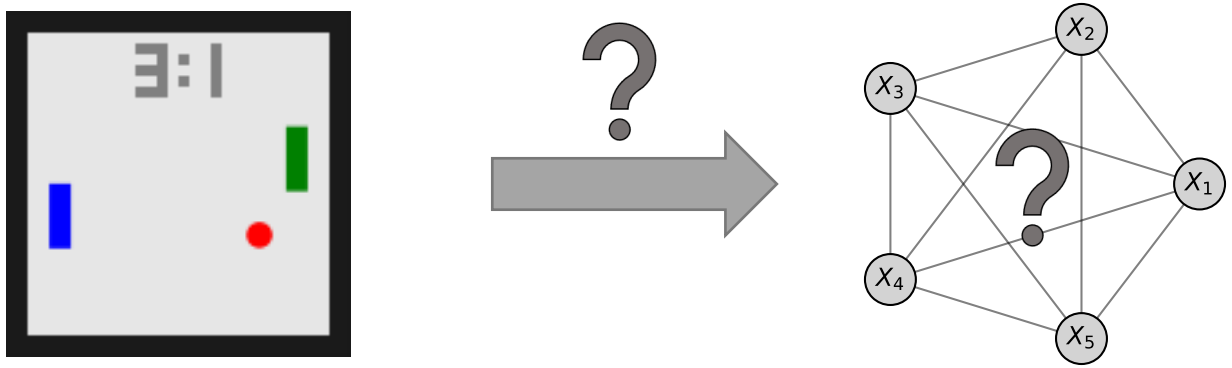
- You can become a TA in the second year (e.g., DL, NLP1, FACT, ATCS, IR1)
- Help new students, see the education from the other perspective
- Your voice can have an impact here!

See you in Deep Learning 1!



My PhD

- QUVA lab (ELLIS), supervised by Efstratios Gavves and Taco Cohen
- Joined directly after Masters, 2 years in, 2 years to go
- Main topic: Intersection of Causality and ML/DL, Causal Representation Learning
- Great research environment, great opportunities



UAI 2022 – Eindhoven

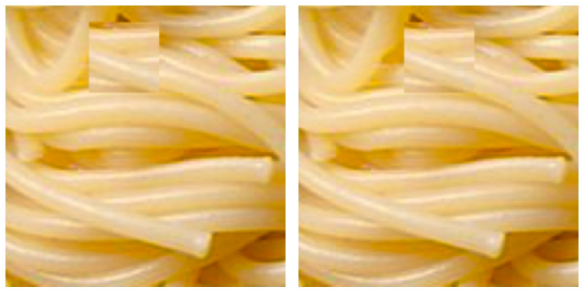
ICML 2022 – Baltimore (USA)

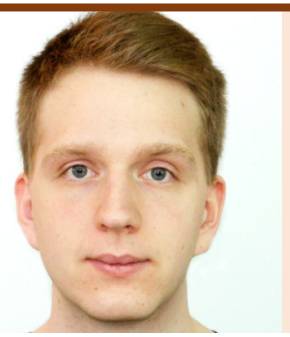
Master Thesis Supervision

Frank Brongers

Contrastive Object-Representation Learning from Temporal Data

- Identify and separate objects without supervision
- How can you exploit temporal data and contrastive learning?

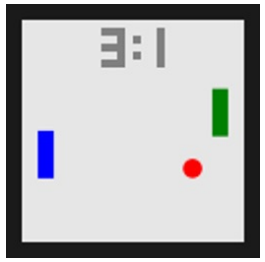


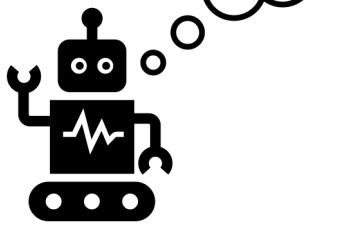


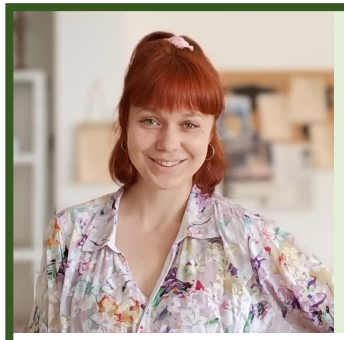
Mátyás Schubert

Towards Causal Credit Assignment

- Reinforcement Learning by trial-and-error: very noisy
- Reason about why something happens



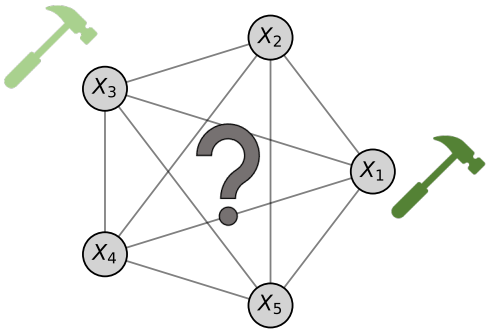




Nadja Rutsch

Joint outlier detection and causal discovery

- Identify invertentional data in large, mixed dataset
- Improving causal discovery, especially neural methods



Opportunities after the Master AI

- PhD at UvA or other universities internationally
- Several AI companies are in Amsterdam (but not limited to)
  - You do many projects in the Master AI, make sure to show them!
- Start-up village

Google Research Qualcomm Microsoft TOMTOM sensity databricks BRAINCREATORS

General tips

View the Master as a collaboration, *not* a competition!

Stay up-to-date with newest AI trends (e.g. on Twitter)

Explore the topics, find your interests!

Have fun!

Make sure to be strong on coding, learn from others

Make the most out of the opportunities!

Ask questions, TAs are there to *help* you, not just grade you!

Thanks!

Questions?

Feel free to reach out:


p.lippe@uva.nl


phillip_lippe

Slides