DANILO **DE GOEDE**

PhD Student in Foundation Models

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I am PhD student intrigued by higher-order capabilities in machine learning methods such as commonsense reasoning, temporality, and causality. Despite the tremendous advances in deep learning over the past decade, I believe there is a lot to gain by studying and improving the efficiency of the *how* we learn from the data we have at our possession. My research interests include, but are not limited to foundation models, computer vision, and self-supervised learning.

Education

2023 - exp. 2027 **PhD, Artificial Intelligence**, QUVA Lab, University of Amsterdam
- Working on computationally efficient adaptation techniques for foundation models to endow them with properties of interest.
- Supervisors : prof. dr. Cees Snoek and dr. Yuki Asano.

2021 - 2023 **Master of Science, Artificial Intelligence**, University of Amsterdam
- Electives : Computer Vision 2, Deep Learning 2, Interpretability & Explainability in AI, Reinforcement Learning, Machine Learning 2.
- Thesis on the Generalizability of Causal Representations under supervision of dr. Sara Magliacane and Phillip Lippe MSc (Thesis).
- Final GPA : 8.9/10, cum laude.

2018 - 2021 **Bachelor of Science, Computer Science**, University of Amsterdam
- Thesis on Enhancing a Hive Playing Engine with Reinforcement Learning under supervision of dr. ir. Ana Lucia Varbanescu and Duncan Kampert (Thesis, Publication).
- Final GPA : 9.2/10, cum laude (first in class of ~100).

Experience

October 2022 – June 2023 **Research Intern, University of Amsterdam, Qualcomm,**
- Research internship for my Master's thesis at the Qualcomm-UvA (QUVA) lab, under supervision of Dr. Sara Magliacane and Phillip Lippe.

Research | PyTorch Lightning | PyTorch

September 2019 – Present **Teaching Assistant, University of Amsterdam,**
- Responsibilities : Assisting practical sessions, creating and grading assignments, teaching tutorials, and invigilating during exams.
- Courses : Programming Languages (19/20, 21/22), Linear Algebra (19/20), Data Structures and Algorithms (19/20), Automata (19/20), Databases (20/21), Discrete Mathematics (20/21), Calculus (20/21), Machine Learning (20/21, 21/22), Computer Vision (21/22), Data Analysis (21/22), and VR/AR (21/22), Deep Learning 1 (22/23, 23/24), Deep Learning 2 (22/23).
- Created and taught a tutorial notebook for the Causality and Causal Representation module of the Deep Learning 2 course (Link).
- Head Teaching Assistant for the 2023 edition of the Deep Learning 1 course, where my responsibilities included teaching a tutorial lecture series on implementing various deep learning methodologies in PyTorch (Link) and providing high-level support in coordinating the course.

Teaching | PyTorch | C | Java | Python | SQL | SPARQL | C# | Unity

Publications

2022 C-3PO : Towards Rotation Equivariant Feature Detection and Description
P Bagad*, F Eijkelboom*, M Fokkema*, D de Goede*, P Hilders*, M Kofinas
VIPrior Workshop, ECCV, 2022 (Tel Aviv, Isreal)

2022 Reproducibility Study of "Counterfactual Generative Networks"
P Bagad*, P Hilders*, J Maas*, D de Goede*
ML Reproducibility Challenge, Invited Talk at NeurIPS 2022 (New Orleans, USA)

2022 The Cost of Reinforcement Learning for Game Engines : The AZ-Hive Case-study
D de Goede, D Kampert, AL Varbanescu
Research Track, ACM/SPEC ICPE 2022 (Bejing, China)

Projects

Quantifying CLIP's Ability to Perform Cross-Modal Grounding using Attention-Model Explainability 2022

github.com/bpiyush/CLIP-grounding Poster Demo
Quantified CLIP's ability to perform panoptic narative grounding using the Attention-model Explainability method for Interpreting Bi-Modal Transformers by Chefer et al. (2021). Our demo was added to the official Transformer-MM-Explainability repository

PyTorch

TicketVise 2020

github.com/TicketVise/ticketvise Official Website
Layed the foundations for TicketVise, a ticket system for answering students' questions that is seamlessly integrated in popular learning management systems (e.g., Canvas, Blackboard, Moodle). Together with a group of twelve talented students, we built application from the ground up in just 4 weeks. Four of those students are still actively working on it, and the application is currently used by more than 40 courses at the University of Amsterdam

Django Docker GitLab CI/CD Python Vue HTML CSS

Skills

Programming Languages	Python , C/C++, Java, Javascript, SQL, PHP, Bash, Haskell, Prolog, Erlang, Go.
Deep Learning Frameworks	PyTorch, PyTorch Lightning, TensorFlow
Macro skills	Git, LaTeX, Docker, Linux, Scientific Writing, Web Development, Parellel Programming.

Honors & Awards

Best Paper Award at the ML Reproducibility Challenge 2021 Issued by Paper's with Code

Reviewer's Comments News Article
Out of the 100+ submitted papers, our paper on the Reproducibility Study of "Counterfactual Generative Networks" has been granted the Best Paper Award of MLRC 2021, due to its "very high quality of all-round reproducibility effort and presentation".

Best Poster Award at the XAI Course at the University of Amsterdam Issued by dr. J. Zuidema

Poster
Presentation on poster on Quantifying CLIP's Ability to Perform Cross-Modal Grounding using Attention-Model Explainability.

Best Presentation Award at CompSys-2021 Issued by prof. H.E. Bal and dr. ir. A. Trivedi

Conference Website
Presentation on paper on The Cost of AlphaZero : the Hive Case in collaboration with dr. ir. A.L. Varbanescu and D. Kampert MSc.