

# Bram Grooten

*PhD candidate in Deep Learning*



Passionate PhD researcher, working on dynamic sparse training of neural networks, specifically in the field of deep **reinforcement learning** and robotics. Currently a research intern at **Sony AI** working on generalization in the GT Sophy team. Expected PhD graduation date: February 2026.

 [bramgrooten.nl](https://bramgrooten.nl)  [github](#)  [linkedin](#)  [scholar](#)  [b.grooten@tue.nl](mailto:b.grooten@tue.nl)

## Education

- 2022 – 2026 **PhD Candidate**, *Eindhoven University of Technology*, Netherlands  
Research on dynamic sparse training in deep reinforcement learning, improving the efficiency and focus of neural networks, testing on benchmarks such as the UR5 Robotic Arm.
- 2018 – 2021 **Master Applied Mathematics**, *Eindhoven University of Technology (TU/e)*  
Graduated cum laude. Thesis on multi-agent deep reinforcement learning for Hanabi.
- 2018 – 2021 **Master Science Education**, *Eindhoven University of Technology*  
Acquired the official license to teach mathematics in Dutch high schools.
- 2014 – 2017 **Bachelor Applied Mathematics**, *Wentworth Institute of Technology & TU/e*  
Studied abroad in Boston US, after which I continued in the Netherlands.
- 2008 – 2014 **High school**, *Sint-Joriscollege*, Eindhoven, Graduated cum laude  
Bèta award: student with the highest grades in STEM courses.

## Projects and Work Experience

- 2024 – 2025 **Research Intern**, *Sony AI*, Zürich, Switzerland, [Gran Turismo](#)  
Joining the Gran Turismo Sophy team to improve the agent's generalization capabilities.
- 2023 **Research visit in Alberta**, *Aug - Dec*, [UAlberta](#)  
Visited the University of Alberta, joining Matthew Taylor's Intelligent Robot Learning (IRL) Lab at the Alberta Machine Intelligence Institute (Amii).
- 2023 **DLRL at Mila**, *Jul*, [drl.ca](#)  
Accepted at the Deep Learning Reinforcement Learning summer school, which is held at the Mila research institute in Montreal, Canada.
- 2022 **European Summer Schools**, *Jun - Jul*  
Participated in three machine learning summer schools: [MLSS](#), [EEML](#), and [M2L](#).
- 2020 – 2021 **Serpentine AI**, *Sep - Aug*, [serpentine.ai](#)  
Chairman of the student team which develops AI for e-Sports. Led the team through many international AI programming competitions. Learned to work with PyTorch and TensorFlow, program in Python, Java, C++, and collaborate via Git.

- 2020 **Angry Birds Competition**, Jun - Aug, [AI Birds.org](#)  
Winning team in this challenging level generation contest.
- 2020 **AI Snakes Competition**, Mar - May, [Technical Report](#)  
Team-lead of a prize-winning group of developers.
- 2020 **MIT Battlecode**, Jan - Feb, [battlecode.org](#)  
Programming competition hosted by MIT where we reached the top 30.
- 2019 **Math Teacher**, *Maaslandcollege & Van Maerlantlyceum*, Oss & Eindhoven  
During the Education master I learned the teaching craft in these two internships.
- 2017 **Researcher**, *ThuisBaas*, Amsterdam, Netherlands  
I analyzed the sound level of heat pumps and improved their solar energy model.
- 2017 **Exam Trainer**, *Lyceo*, Netherlands  
Mathematics tutor for final year high school students.
- 2015 **Tutor**, *Phillips Brooks House Association*, Cambridge, MA, United States  
Volunteering as a tutor for children from the rough neighborhood of Mission Hill.

## Publications

- 2025 C. Muslimani, **B. Grooten**, D. Mamillapalli, M. Pechenizkiy, D. Mocanu, M. Taylor. *Boosting Robustness in Preference-Based Reinforcement Learning with Dynamic Sparsity*. AAMAS'25. [arXiv](#)
- 2024 C. Oerlemans, **B. Grooten**, M. Braat, A. Alassi, E. Silvas, D. Mocanu. *LiMTR: Time Series Motion Prediction for Diverse Road Users through Multimodal Feature Integration*. NeurIPS'24 workshop Time Series in the Age of Large Models. [arXiv](#)
- 2024 **B. Grooten**, T. Tomilin, G. Vasan, M. Taylor, A. Mahmood, M. Fang, M. Pechenizkiy, D. Mocanu. *MaDi: Learning to Mask Distractions for Generalization in Visual Deep Reinforcement Learning*. Oral at AAMAS'24. [arXiv](#)
- 2024 **B. Grooten**. *Large Learning Agents: Towards Continually Aligned Robots with Scale in RL*. AAMAS'24 Doctoral Consortium. [proceedings](#)
- 2023 A. Nowak, **B. Grooten**, D. Mocanu, J. Tabor. *Fantastic Weights and How to Find Them: Where to Prune in Dynamic Sparse Training*. NeurIPS'23. [arXiv](#)
- 2023 **B. Grooten**, G. Sokar, S. Dohare, E. Mocanu, M. Taylor, M. Pechenizkiy, D. Mocanu. *Automatic Noise Filtering with Dynamic Sparse Training in Deep Reinforcement Learning*. Full-paper at AAMAS'23 & Spotlight at SNN'23. [arXiv](#)
- 2023 W. Wesselink, **B. Grooten**, Q. Xiao, C. de Campos, M. Pechenizkiy. *Nerva: a Truly Sparse Implementation of Neural Networks*. SNN'23. [sparseneural.net](#) #28
- 2022 **B. Grooten**, J. Wemmenhove, M. Poot, J. Portegies. *Is Vanilla Policy Gradient Overlooked? Analyzing Deep Reinforcement Learning for Hanabi*. Adaptive and Learning Agents workshop at AAMAS'22. [arXiv](#)
- 2022 **B. Grooten**, G. Sokar, E. Mocanu, S. Dohare, M. Taylor, M. Pechenizkiy, D. Mocanu. *Towards Implementing Truly Sparse Connections in Deep RL Agents*. SNN'22. [sparseneural.net](#) #53

- 2021 **B. Grooten**. *Deep Reinforcement Learning for the cooperative card game Hanabi*. Master Thesis. [research.tue.nl](https://research.tue.nl)
- 2020 **B. Grooten**, B. Tulkens. *Programming in mathematics and physics classes*. Master Thesis. [research.tue.nl](https://research.tue.nl)
- 2020 **B. Grooten**, I. Schilstra, W. van der Hert, D. van Genuchten. *AI Snakes Competition*. Technical Report. [serpentine.ai](https://serpentine.ai)

## Invited Talks

- 2024 **Wentworth Institute of Technology**, *Efficient Focus for Autonomous Agents* Boston, MA, United States. Aug 20<sup>th</sup>. [Announcement](#).
- 2024 **Massachusetts Institute of Technology**, *Efficient Focus for Autonomous Agents* LIDS: Cathy Wu's lab. Cambridge, MA, United States. Aug 19<sup>th</sup>.
- 2024 **Sony AI**, *Efficient Focus for Autonomous Agents: Generalization in Deep RL* Tech Talk Series. Zürich, Switzerland. Jul 24<sup>th</sup>.
- 2024 **ETH Zürich**, *Efficient Focus for Autonomous Agents: Generalization in Deep RL* Computational Robotics Lab. Zürich, Switzerland. Jul 17<sup>th</sup>. [Announcement](#).
- 2024 **ML Collective**, *Efficient Focus for Autonomous Agents: Generalization in Deep RL* Online reading group "Deep Learning: Classics and Trends." Mar 15<sup>th</sup>. [Website](#).
- 2024 **Leiden University**, *Efficient Focus for Autonomous Agents* Leiden, Netherlands. Feb 13<sup>th</sup>.
- 2023 **University of Calgary**, *Efficient Focus for Autonomous Agents* Calgary AB, Canada. Oct 25<sup>th</sup>. [Website](#).
- 2023 **LIFE at MIT**, *MaDi: Learning to Mask Distractions from Pixels* Online reading group "Learning in Foundation Environments." Oct 23<sup>rd</sup>.
- 2023 **University of Alberta**, *Efficient Focus for Autonomous Agents* Edmonton AB, Canada. Aug 25<sup>th</sup>. [Website](#). [Recording](#).
- 2023 **PyData**, *Automatic Noise Filtering* Eindhoven, Netherlands. Apr 26<sup>th</sup>. [Announcement](#).
- 2022 **Jagiellonian University**, *Efficient AI for Autonomous Agents* Kraków, Poland. Jul 5<sup>th</sup>.

## Skills

### Technical

Python, Java, C++, Shell scripts  
PyTorch, JAX, TensorFlow  
Git, Slurm, Linux, HTML,  $\text{\LaTeX}$

### Social

Teammaker, Educator  
Perseverance, Creativity  
Leadership, To The Point

### Languages

Dutch, English (fluent), Spanish, German (basic)

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## Awards

- 2024 AAMAS Scholarship recipient
- 2023 Spotlight paper: Sparse Neural Networks workshop at ICLR
- 2023 AAMAS Scholarship recipient
- 2021 Cum laude MSc graduation
- 2014 Bèta award: student with highest grades in all STEM courses
- 2014 Cum laude graduation