

# Bram Grooten

*PhD candidate in Deep Learning*



Passionate PhD researcher, currently working on dynamic sparse training of neural networks, specifically in the field of deep reinforcement learning. I am using the continuous control tasks from MuJoCo and OpenAI Gym to benchmark my ideas. The PhD project will translate research findings into the application domain of autonomous driving.

 [github](#)  [linkedin](#)  [scholar](#)  
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## Education

- 2018 – 2021 **Master of Applied Mathematics**, *Eindhoven University of Technology (TU/e)*  
Graduated with honor. Graduation project on multi-agent deep reinforcement learning.
- 2018 – 2021 **Master of Science Education**, *Eindhoven University of Technology*  
Acquired the official license to teach mathematics in Dutch high schools.
- 2015 – 2017 **Bachelor of Applied Mathematics**, *Wentworth Institute of Technology & TU/e*  
I studied abroad in Boston US, after which I continued in the Netherlands.
- 2008 – 2014 **High school**, *Sint-Joriscollege*, Eindhoven, Graduated with honor  
Bèta award: student with the highest grades in STEM courses.

## Recent Projects

- 2022 **Summer Schools**, *Jun - Jul*  
Accepted at three machine learning summer schools: [MLSS](#), [EEML](#), and [M2L](#).
- 2022 **Multi-Agent RL Competition**, *Mar - Jun*, [AI Arena](#)  
Selected as one of the 12 teams to participate in this global contest, among universities of Alberta, Hong Kong, Melbourne, Toronto, Yale, and others. With 4 graduate students we are developing a deep RL agent to compete in their multiplayer online battle arena.
- 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**, *Jun - Aug*, [AI Birds.org](#)  
Winning team in this exciting level generation contest.
- 2020 **MIT Battlecode**, *Jan - Feb*, [battlecode.org](#)  
Programming competition hosted by MIT where we reached the top 30.
- 2018 – 2020 **Technology Ambassador**, [bramgrooten.nl/gastles](#)  
Bringing tech-enthusiasm to children with our guest lecture: Make your own app!

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## Work experience

- Nov 2021 – **PhD Candidate**, *Eindhoven University of Technology*, Netherlands  
now Research focussed on dynamic sparse training in deep reinforcement learning, improving the efficiency of neural networks. The project has applications in autonomous driving.
- Feb – Dec **Math Teacher**, *Maaslandcollege & Van Maerlantlyceum*, Oss & Eindhoven  
2019 During the Education master I learned the teaching craft in these two internships.
- Jul – Oct **Researcher**, *ThuisBaas*, Amsterdam, Netherlands  
2017 I analyzed the sound level of heat pumps and improved their solar energy model.
- Mar – Jun **Exam Trainer**, *Lyceo*, Netherlands  
2017 Mathematics tutor for final year high school students.
- Feb – May **Tutor**, *Phillips Brooks House Association*, Cambridge, MA, United States  
2015 Volunteering as a tutor for children from the rough neighborhood of Mission Hill.

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## Publications

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

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## Skills

### Technical

Python, Java, C++, Shell scripts  
PyTorch, TensorFlow, Git, Slurm  
Mathematica, MATLAB, HTML

### Social

Teampayer, Educator  
Perseverance, Creativity  
Leadership, To The Point

### Languages

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

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## References

- dr. Decebal Mocanu**, *UTwente*, [d.c.mocanu@utwente.nl](mailto:d.c.mocanu@utwente.nl), PhD daily supervisor
- prof. dr. Mykola Pechenizkiy**, *TU/e*, [m.pechenizkiy@tue.nl](mailto:m.pechenizkiy@tue.nl), PhD supervisor
- dr. Jim Portegies**, *TU/e*, [j.w.portegies@tue.nl](mailto:j.w.portegies@tue.nl), MSc supervisor