Simon J. van Steenkiste

Personal Information

Nickname: Sjoerd van Steenkiste
Date and place of birth: 16-04-1992, Vlissingen, The Netherlands
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Research Interests

I am generally interested in Artificial Intelligence, although my current focus is on unsupervised learning algorithms that build complex symbol-like world representations. Previously I worked on neuroevolution and multiwavelets.

Education

The Swiss AI Lab IDSIA, Lugano-Manno, Switzerland
Affiliated with the University of Lugano (USI)

PhD., Artificial Intelligence — **September 2016 - Present**
Advisor: Prof. Dr. Jürgen Schmidhuber

Maastricht University, Maastricht, The Netherlands

M.Sc., Artificial Intelligence — **March, 2016**
Thesis: "A Wavelet-based Encoding for Neuroevolution"
Advisor: Dr. Jan Koutník (IDSIA), Dr. Kurt Driessens (Maastricht University)
GPA: 9/10

Maastricht University, Maastricht, The Netherlands

M.Sc., Operations Research — **July, 2015**
Thesis: "Designing Balanced Parametrised Multiwavelets via Lossless Systems"
Advisor: Prof. Dr. Ir. Ralf Peeters
GPA: 9.05/10

Maastricht University, Maastricht, The Netherlands

B.Sc., Knowledge Engineering — **July, 2013**
Thesis: "Bootstrap Feature Selection for Decision Trees"
Advisor: Dr. Evgueni Smirnov
GPA: 8.48/10

Work Experience

NNAISENSE S.A., Lugano, Switzerland

Research Intern — **April, 2016 - June, 2016**
Development of self-driving/parking car demo for Audi using machine learning and neuroevolution.

The Swiss AI Lab IDSIA, Manno, Switzerland

Visiting Student — **September, 2015 - March, 2016**
Master thesis research in collaboration with the deep learning group of IDSIA, led by Prof. Dr. Jürgen Schmidhuber, under direct supervision of Dr. Jan Koutník.

AtonRa Partners S.A., Geneva, Switzerland

Scientific Advisor (part-time) — **January, 2015 - Present**
Advising on recent advances and breakthroughs in machine learning and artificial intelligence.

Research Intern — **July, 2014 - December, 2014**
Research in machine learning approaches to guide investors and financial analysts in selecting the best portfolio of stocks by predicting their future value.

Maastricht University, Maastricht, The Netherlands

Student member of the programme committee **September, 2013 - July, 2014**
As a representative of the master programme in artificial intelligence I was involved in the evaluation of the curriculum and helped maintain the quality of the programme.

Courses

Max Planck Institute for Intelligent Systems, Tübingen, Germany

Machine Learning Summer School **June, 2017**
Focused on learning about fundamental and advanced aspects of machine learning, data analysis and inference, from intellectual leaders in the field.

University of Manchester, Manchester, The United Kingdom

Virtually in Reality Summer School **July, 2013**
Focused on learning about collaboration in cross-cultural environments by simulating the launch of a technical start-up together with other technical students having different cultural backgrounds.

Teaching Experience

Teaching Assistant

Duties included leading (computer) lab exercises, tutorials and grading.

- Machine Intelligence, *University of Lugano* **Fall 2016**
- Programming, *Maastricht University, Science Programme* **Summer 2015**
- Data Structures and Algorithms, *Maastricht University, Knowledge Engineering* **Spring 2015**
- Linear Algebra, *Maastricht University, Science Programme* **Spring 2014**
- Linear Algebra, *Maastricht University, Knowledge Engineering* **Fall 2013**
- Linear Algebra, *Maastricht University, Science Programme* **Spring 2013**

Conference Proceedings

Greff, K.*, **van Steenkiste, S.***, & Schmidhuber, J. (2017, December). Neural Expectation Maximization. In *Advances in Neural Information Processing Systems 30 NIPS'17 (pp. 6694–6704).*
NVAIL Pioneering Research Award

van Steenkiste, S., Koutník, J., Driessens K., & Schmidhuber, J. (2016, July). A Wavelet-based Encoding for Neuroevolution. In *Proceedings of the Genetic and Evolutionary Computation Conference GECCO'16* (pp. 517-524). ACM.

Workshop Abstracts

Greff, K.*, **van Steenkiste, S.***, & Schmidhuber, J. (2017, March). Neural Expectation Maximization. *5th International Conference on Learning Representations ICLR'17.* Workshop track.

van Steenkiste, S., Chang, M., Greff, K., & Schmidhuber, J. (2017, December). Relational Neural Expectation Maximization. *Neural Information Processing Systems NIPS'17.* Workshop on Cognitively Informed Artificial Intelligence
Oral presentation / Outstanding paper award.

*** Both authors contributed equally to this work.**

Presentations

"Relational Neural Expectation Maximization", (2017, December). *NIPS 2017 Workshop on Cognitively Informed Artificial Intelligence.*

"Symbol-like Representation Learning with Neural Expectation Maximization", (2017, September). *Google Brain, Zurich.*

Honors and Awards

Outstanding Paper Award, awarded by the committee of the NIPS 2017 CIAI Workshop	**2017**
NVAIL Pioneering Research Award, awarded by NVIDIA	**2017**
Graduated *Summa Cum Laude*, M.Sc. in Artificial Intelligence	**2016**
Student Prize, awarded by the foundation Stichting Wetenschapsbeoefening UM	**2015**
Thesis award (1^{st}), awarded for the best master thesis in Operations Research	**2015**
Graduated *Summa Cum Laude*, M.Sc. in Operations Research	**2015**
Thesis award (2^{nd}), awarded for the best bachelor thesis in Knowledge Engineering	**2013**
Graduated *Cum Laude*, B.Sc. in Knowledge Engineering	**2013**