DYLAN ASHLEY

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EDUCATION

Ph.D. in Informatics   Expected 2025
Università della Svizzera italiana (Dalle Molle Institute for Artificial Intelligence Research)
Supervisor: Jürgen Schmidhuber
Focus: Reinforcement Learning, Neural Networks, Machine Learning

M.Sc. in Computing Science   2020
University of Alberta (Alberta Machine Intelligence Institute)
Supervisor: Richard S. Sutton
GPA: 4.0 / 4.0

B.Sc. Honors in Computing Science   2017
University of Alberta

WORK EXPERIENCE

Visiting Researcher (x2)   2023 – 2024
AI Initiative, King Abdullah University of Science and Technology
- Visited two separate times for four and six months, respectively.
- Worked with Prof. Eric Feron and Prof. Jürgen Schmidhuber on several topics (see selected preprints and publications).

Chief Technology Officer   2021 – Present
Perseverance Analytics Ltd.
- Founding member of an incorporated non-profit data science startup based in Alberta, Canada.
- Startup focuses on connecting communities to social supports to bridge the gap between the availability and accessibility of services.

Doctoral Research Assistant   2021 – Present
Università della Svizzera italiana
- Worked with Prof. Jürgen Schmidhuber on several deep learning topics.

Vice-President Academic   2019 – 2020
Graduate Students' Association, University of Alberta
- Official representative of over 7,900 graduate students in academic matters.
- Advocated for graduate student issues to the university and worked with the university to build a better learning environment for students.
- Delivered several significant advocacy victories, including better oversight for mentorship and a reduced increment in tuition during a budgetary crisis.
- Time commitment of approximately 30 hours a week for a one-year term.

Graduate Research Assistant   2017 – 2020
University of Alberta
- Worked with Prof. Richard S. Sutton and others on several reinforcement learning topics.

Undergraduate Summer Research Assistant (x3)   2015 – 2017

University of Alberta

- Won three separate competitive four-month NSERC Undergraduate Student Research Awards, the first working with first Prof. José Nelson Amaral, and the latter two working with Prof. Richard S. Sutton.

SELECTED PREPRINTS

Wang, Y., Wu, Q., Li, W., **Ashley, D. R.**, Faccio, F., Huang, C., & Schmidhuber, J. (2024) *Scaling Value Iteration Networks to 5000 Layers for Extreme Long-Term Planning.* arXiv. `https://arxiv.org/abs/2406.08404`

Submitted to the Thirty-Eighth Annual Conference on Neural Information Processing Systems.

Alhakami, M., **Ashley, D. R.***, Dunham, J.*, Faccio, F., Feron, F., & Schmidhuber, J. (2024). *Towards a Robust Soft Baby Robot With Rich Interaction Ability for Advanced Machine Learning Algorithms.* arXiv. `https://arxiv.org/abs/2404.08093`

Submitted to the 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems.

Stanic, A.*, **Ashley, D.**, Serikov, O., Kirsch, L., Faccio, F., Schmidhuber, J., Hofmann, T., & Schlag, I.* (2023). *The languini kitchen: Enabling language modelling research at different scales of compute.* arXiv. `https://arxiv.org/abs/2309.11197`

Zhuge, M.*, Liu, H.*, Faccio, F.*, **Ashley, D. R.***, Csordas, R., Gopalakrishnan, A., Hamdi, A., Hammoud, H. A. A. K., Herrmann, V., Irie, K., Kirsch, L., Li, B., Li, G., Liu, S., Mai, J., Piekos, P., Ramesh, A., Schlag, I., Shi, W., Stanic, A., Wang, W., Wang, Y., Xu, M., Fan, D.-P., Ghanem, B., & Schmidhuber, J. (2023). *Mindstorms in natural language-based societies of mind.* arXiv. `https://arxiv.org/abs/2305.17066`

Presented at the NeurIPS 2023 Workshop on Robustness of Zero/Few-Shot Learning in Foundation Models **(Best-paper Award)**.

Ashley, D. R.*, Herrmann, V.*, Friggstad, Z., & Schmidhuber, J. (2022). *On narrative information and the distillation of stories.* arXiv. `https://arxiv.org/abs/2211.12423`

Submitted to IEEE Transactions on Pattern Analysis and Machine Intelligence. Previously presented at the NeurIPS 2023 Workshop on Machine Learning for Creativity and Design and at the NeurIPS 2022 Workshop Information-Theoretic Principles in Cognitive Systems.

Ashley, D. R., Arulkumaran, K., Schmidhuber, J., & Srivastava, R. K. (2022). *Learning Relative Return Policies With Upside-Down Reinforcement Learning.* arXiv. `https://arxiv.org/abs/2202.12742`

Presented at the 5th Multidisciplinary Conference on Reinforcement Learning and Decision Making.

Ashley, D. R., Ghiassian, S., & Sutton, R. S. (2021). *Does the adam optimizer exacerbate catastrophic forgetting?* arXiv. `https://arxiv.org/abs/2102.07686`

Ma, C., **Ashley, D. R.**, Wen, J., & Bengio, Y. (2020). *Universal successor features for transfer reinforcement learning.* arXiv. `https://arxiv.org/abs/2001.04025`

<div align="right">* equal contribution</div>

SELECTED PUBLICATIONS

Štrupl, M., Faccio, F., **Ashley, D. R.**, Srivastava, R. K., & Schmidhuber, J. (2022). Reward-Weighted Regression Converges to a Global Optimum. *Proceedings of the Thirty-Sixth AAAI Conference on Artificial Intelligence,* 8361–8369. `https://doi.org/10.1609/aaai.v36i8.20811`

Ashley, D. R. (2020). *Understanding Forgetting in Artificial Neural Networks* [Master's thesis, University of Alberta]. University of Alberta Education and Research Archive. `https://doi.org/10.7939/r3-6zvv-5z64`

Ashley, D. R.*, Chockalingam, V.*, Kuzma, B.*, & Bulitko, V. (2019). Learning to Select Mates in Evolving Non-playable Characters. *Proceedings of the 2019 IEEE Conference on Games,* 1–8. `https://doi.org/10.1109/CIG.2019.8848114`

Ashley, D. R.*, Chockalingam, V.*, Kuzma, B.*, & Bulitko, V. (2019). Learning to Select Mates in Artificial Life. *Proceedings of the Genetic and Evolutionary Computation Conference Companion,* 103–104. `https://doi.org/10.1145/3319619.3322060`

Sherstan, C., **Ashley, D. R.***, Bennett, B.*, Young, K., White, A., White, M., & Sutton, R. S. (2018). Comparing Direct and Indirect Temporal-Difference Methods for Estimating the Variance of the Return. *Proceedings of the 34th Conference on Uncertainty in Artificial Intelligence,* 63–72. `http://auai.org/uai2018/proceedings/papers/35.pdf`

Amaral, J. N., Borin, E., **Ashley, D. R.**, Benedicto, C., Colp, E., Hoffmam, J. H. S., Karpoff, M., Ochoa, E., Redshaw, M., & Rodrigues, R. E. (2018). The Alberta Workloads for the SPEC CPU 2017 Benchmark Suite. *Proceedings of the 2018 IEEE International Symposium on Performance Analysis of Systems and Software,* 159–168. `https://doi.org/10.1109/ISPASS.2018.00029`

* equal contribution

HONORS AND AWARDS

Queen Elizabeth II Graduate Scholarship, University of Alberta (C\$10,800)	2018
CGS-M, Natural Science and Engineering Research Council of Canada (C\$17,500)	2017
Walter H. Johns Graduate Fellowship, University of Alberta (C\$5,800)	2017
Science Graduate Scholarship, University of Alberta (C\$2,000)	2017
Kao Family Eisenco Scholarship, University of Alberta (C\$1,200)	2016
Jason Lang Scholarship, University of Alberta (C\$1,000)	2015
Suncor Energy Scholarship, Suncor Energy (C\$1,800)	2015
Jason Lang Scholarship, University of Alberta (C\$1,000)	2014
Suncor Energy Scholarship, Suncor Energy (C\$1,800)	2014

COMMUNITY SERVICE

Program Committee, European Workshop on Reinforcement Learning	2023
Faculty of Informatics Council, Università della Svizzera italiana	2022 – 2023
Mentoring Award Adjudication Panel, University of Alberta	2020
Equity, Diversity, and Inclusion Council, Alberta Machine Intelligence Institute	2019 – 2020
Volunteer, Campus Food Bank	2019
Faculty of Graduate Studies and Research Council, University of Alberta	2018 – 2019

Board, Graduate Students' Association	2018 – 2019
Nominating Committee, Graduate Students' Association	2018 – 2019
Council, Graduate Students' Association	2018 – 2020

TEACHING

Teaching Assistant, Machine Learning	2023
Teaching Assistant, Machine Learning	2022
Teaching Assistant, Algorithms & Data Structures	2022
Teaching Assistant, Machine Learning	2021
Teaching Assistant, Introduction to File and Database Management	2015

SUPERVISING

| **Jacopo di Ventura**, M.Sc. Student | 2023 – Present |
| **James Jewitt**, High School Intern | 2015 |

REVIEWING

Reviewer, European Workshop on Reinforcement Learning	2024
Reviewer, NeurIPS Workshop on Aligning RL Experimentalists and Theorists	2024
Reviewer, International Conference on Artificial Neural Networks	2024
Reviewer, Machine Learning	2024
Reviewer, ICML Workshop on Interactive Learning with Implicit Human Feedback	2023
Reviewer, Machine Learning	2023
Reviewer, NeurIPS Workshop on Information-Theoretic Principles in Cognitive Systems	2022
Reviewer, NeurIPS Workshop on Reinforcement Learning for Real Life Workshop	2022
Reviewer, European Workshop on Reinforcement Learning	2022

PROFESSIONAL MEMBERSHIP

Member, Association for Computing Machinery	Since 2014
Member, Association for the Advancement of Artificial Intelligence	Since 2018
Member, Institute of Electrical and Electronics Engineers	Since 2019

LANGUAGES

English: Native Speaker
French: Moderate Fluency
Italian: Some Knowledge
Mandarin: Some Knowledge

CITIZENSHIP AND RESIDENCE

Canada: Citizen
South Africa: Citizen
Switzerland: B Permit

REFERENCES AVAILABLE ON REQUEST