DYLAN ASHLEY

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EDUCATION

Ph.D. in Informatics Expected Jan. 2026
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 Nov. 2020
University of Alberta (Alberta Machine Intelligence Institute)
Supervisor: Richard S. Sutton
GPA: 4.0 / 4.0

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

WORK EXPERIENCE

Consultant / Visiting Researcher Jan. 2023 – Present
Center of Excellence in Generative AI, King Abdullah University of Science and Technology

- Working with Prof. Eric Feron and Prof. Jürgen Schmidhuber on several topics related to deep learning and robotics.
- Helped write two successful grants that together are worth approximately $15,000,000.

Doctoral Research Assistant Jan. 2021 – Present
Università della Svizzera italiana

- Working with Prof. Jürgen Schmidhuber on several deep learning topics.

Chief Technology Officer May 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.

Vice-President Academic May 2019 – Apr. 2020
Graduate Students' Association, University of Alberta

- Salaried 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 Sep. 2017 – Aug. 2020
Reinforcement Learning and Artificial Intelligence Lab, University of Alberta

- Worked with Prof. Richard S. Sutton and others on several reinforcement learning topics.

Undergraduate Summer Research Assistant May. 2015 – Aug. 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.

PREPRINTS AND TECHNICAL REPORTS

Štrupl, M., Szehr, O., Faccio, F., **Ashley, D. R.**, Srivastava, R. K., & Schmidhuber, J. (2025) *On the Convergence and Stability of Upside-Down Reinforcement Learning, Goal-Conditioned Supervised Learning, and Online Decision Transformers.* `https://arxiv.org/abs/2502.05672`

Submitted to the Journal of Machine Learning Research (JMLR).

Di Ventura, J., **Ashley, D. R.**, Herrmann, V., Faccio, F., & Schmidhuber, J. (2025) *Upside Down Reinforcement Learning with Policy Generators.* `https://arxiv.org/abs/2501.16288`

Presented at the 2025 Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM).

Wang, W., Alyahya, H. A., **Ashley, D. R.**, Serikov, O., Khizbullin, D., Faccio, F., & Schmidhuber, J. (2024) *How to Correctly do Semantic Backpropagation on Language-based Agentic Systems.* `http://arxiv.org/abs/2412.03624`

Submitted to the 2025 International Conference on Machine Learning (ICML).

Herrmann, V.*, **Ashley, D. R.***, & Schmidhuber, J. (2024) *Automatic Album Sequencing.* `https://arxiv.org/abs/2411.07772`

Presented as a late-breaking demo at the 2024 Conference of the International Society for Music Information Retrieval (ISMIR).

Zhuge, M., Zhao, C. **Ashley, D. R.**, Wang, W., Khizbullin, D., Xiong, Y., Liu, Z., Chang, E., Krishnamoorthi, R., Tian, Y., Shi, Y., Chandra, V., & Schmidhuber, J. (2024) *Agent-as-a-Judge: Evaluate Agents with Agents.* `https://arxiv.org/abs/2410.10934`

Submitted to the 2025 International Conference on Machine Learning (ICML).

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.* `https://arxiv.org/abs/2406.08404`

Submitted to the 2025 International Conference on Machine Learning (ICML). Previously presented at the 2024 European Workshop on Reinforcement Learning (EWRL).

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

Presented as a late-breaking result at the 2024 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS).

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.* `https://arxiv.org/abs/2309.11197`

Štrupl, M., Faccio, F., **Ashley, D. R.**, Schmidhuber, J., & Srivastava, R. K. (2022). *Upside-Down Reinforcement Learning Can Diverge in Stochastic Environments With Episodic Resets.* https://arxiv.org/abs/2205.06595

Presented at the 2022 Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM).

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

Presented at the 2022 Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM).

Arulkumaran, K., **Ashley, D. R.**, Schmidhuber, J., & Srivastava, R. K. (2022) *All You Need Is Supervised Learning: From Imitation Learning to Meta-RL With Upside Down RL.* https://arxiv.org/abs/2202.11960

Presented at the 2022 Multidisciplinary Conference on Reinforcement Learning and Decision Making (RLDM).

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

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

* equal contribution

PEER-REVIEWED PUBLICATIONS

Ashley, D. R.*, Herrmann, V.*, Friggstad, Z., & Schmidhuber, J. (2025). On narrative information and the distillation of stories. *IEEE Transactions on Pattern Analysis and Machine Intelligence* **(IF 20.8)**, *47*(2), 697–707. https://doi.org/10.1109/TPAMI.2024.3480702

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.

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. (2024). Mindstorms in natural language-based societies of mind. *Computational Visual Media* **(IF 17.3)**.

In press. Early preprint available at https://arxiv.org/abs/2305.17066. Previously presented at the NeurIPS 2023 Workshop on Robustness of Zero/Few-Shot Learning in Foundation Models **(Best-paper Award)**.

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

Best-Paper Award, NeurIPS 2023 Ro-FoMo Workshop 2023
Rising Star in AI Award, King Abdullah University of Science and Technology 2022
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

SUPERVISING

Jacopo di Ventura, M.Sc. Student 2023 – 2024
James Jewitt, High School Intern 2015

TEACHING

Teaching Assistant, Machine Learning 2024
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

REVIEWING

ICLR 2025 Workshop on World Models 2025
International Conference on Learning Representations 2025
European Workshop on Reinforcement Learning 2024
NeurIPS Workshop on Aligning RL Experimentalists and Theorists 2024
International Conference on Artificial Neural Networks 2024
Machine Learning 2024
European Workshop on Reinforcement Learning 2023
ICML Workshop on Interactive Learning with Implicit Human Feedback 2023
Machine Learning 2023
NeurIPS Workshop on Information-Theoretic Principles in Cognitive Systems 2022
NeurIPS Workshop on Reinforcement Learning for Real Life Workshop 2022
European Workshop on Reinforcement Learning 2022

INVITED TALKS

NeurIPS 2023 Ro-FoMo Workshop, New Orleans, US 2023
KAUST Rising Stars in AI Symposium, Thuwal, SA 2022
Alberta Machine Intelligence Institute Tea Time Talks, Virtual 2021
Canadian Association for Graduate Studies Conference, Halifax, CA 2019
IEEE Conference on Games, London, GB 2019
Chinese Graduate Students Association Workshop, Edmonton, CA 2019
Kindred, Toronto, CA 2018

PROFESSIONAL MEMBERSHIP

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

NATURAL LANGUAGES

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

PROGRAMMING LANGUAGES

Python: Expert **Bash:** Strong **C/C++:** Strong **LaTeX:** Strong

Java: Intermediate **SQL:** Intermediate **HTML:** Basic **Lisp:** Basic

Prolog: Basic

CITIZENSHIP AND RESIDENCE

Canada: Citizen **South Africa:** Citizen **Switzerland:** B Permit

REFERENCES AVAILABLE ON REQUEST