

Alper Demir

CONTACT INFORMATION İzmir University of Economics, Department of Computer Engineering, A406 +90-505-395-3937 alper.demir@ieu.edu.tr

RESEARCH INTERESTS Artificial Intelligence, Machine Learning, Reinforcement Learning

EDUCATION **Middle East Technical University (METU)**, Ankara, Turkey

Ph.D., Computer Engineering, November 2019

- Topic: *Improving Reinforcement Learning using Distinctive Clues from the Environment*
- CGPA: 3.93 / 4.00
- Advisor: Prof. Dr. Faruk Polat
- Co-Advisor: Dr. Erkin Çilden

M.Sc., Computer Engineering, August 2016

- GPA: 3.79 / 4.00
- Topic: *Effective Subgoal Discovery and Option Generation in Reinforcement Learning*
- Advisor: Prof. Dr. Faruk Polat

B.Sc., Computer Engineering, June 2014

- GPA: 3.36 / 4.00, HONOR 7 Semesters, HIGH HONOR 1 Semester
- Erasmus Program : Wrocław Uni. of Technology, Wrocław, POLAND, 2013

PROJECTS “Forming Useful Memory in Partially Observable Reinforcement Learning”, Scientific and Technological Research Council of Turkey (TÜBİTAK), Grant No: 120E427, 2021 - 2023, İzmir, Turkey

“Yök Program Ve Kontenjan Yönetim Sistemi (Yök Pkys)”, Scientific and Technological Research Council of Turkey (TÜBİTAK), Grant No: 115G086, 2018 - 2019, Ankara, Turkey

“Subgoal Identification in Sequential Decision Making under Partial Observability”, Scientific and Technological Research Council of Turkey (TÜBİTAK), Grant No: 215E250, 2016 - 2018, Ankara, Turkey

PUBLICATIONS

1. Demir, A., Çilden, E. & Polat, F. *A history tree heuristic to generate better initiation sets for options in reinforcement learning in Proceedings of the Twenty-second European Conference on Artificial Intelligence (ECAI)* (2016), 1644–1645. doi:10.3233/978-1-61499-672-9-1644.
2. Demir, A., Çilden, E. & Polat, F. *Local roots: A tree-based subgoal discovery method to accelerate reinforcement learning in Joint European Conference on Machine Learning and Knowledge Discovery in Databases (ECML/PKDD)* (2016), 361–376. doi:10.1007/978-3-319-46227-1_23.
3. Demir, A., Çilden, E. & Polat, F. *A Concept Filtering Approach for Diverse Density to Discover Subgoals in Reinforcement Learning in 2017 IEEE 29th International Conference on Tools with Artificial Intelligence (ICTAI)* (2017), 1–5. doi:10.1109/ICTAI.2017.00012.
4. Demir, A., Çilden, E. & Polat, F. *Generating Effective Initiation Sets for Subgoal-Driven Options. Advances in Complex Systems* **22**. doi:10.1142/S0219525919500012 (2019).
5. Demir, A., Çilden, E. & Polat, F. *Landmark Based Reward Shaping in Reinforcement Learning with Hidden States in Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems* (Int. Foundation for Autonomous Agents and Multiagent Systems, 2019), 1922–1924. ISBN: 978-1-4503-6309-9. <<http://dl.acm.org/citation.cfm?id=3306127.3331964>>.

6. Demir, A., Çilden, E. & Polat, F. Automatic landmark discovery for learning agents under partial observability. *The Knowledge Engineering Review* **34**. doi:10.1017/S026988891900002X (2019).
7. Demir, A., Çilden, E. & Polat, F. Landmark based guidance for reinforcement learning agents under partial observability. *International Journal of Machine Learning and Cybernetics*, 1–21 (2022).
8. Dilek, İ., Oğuz, K. & Demir, A. *Behaviour Analysis of Izmir Residents Using Public Wi-Fi Access Point Usage in 2022 3rd International Informatics and Software Engineering Conference (IISEC)* (2022), 1–6.
9. Demir, A. Learning what to memorize: Using intrinsic motivation to form useful memory in partially observable reinforcement learning. *Applied Intelligence*, 1–19 (2023).

ACADEMIC
EXPERIENCE

Assistant Prof. Dr.

February 2020 - ...

Department of Computer Engineering,
Izmir University of Economics

Research & Teaching Assistant

September 2014 - November 2019

Department of Computer Engineering,
Middle East Technical University
Supervisor: Prof. Dr. Faruk Polat
Co-Supervisor: Dr. Erkin Çilden

INDUSTRY
EXPERIENCE

Software Developer, BTT Inc., METU Technopolis

2013-2014

- Developing applications on Android
- Involving in Web Development

Intern, Turkish Aerospace Industries (TAI)

Summer 2012

- Working with senior developers in designing and developing software tools
- Writing tests for Human Machine Interface partition

SOCIAL
ACTIVITIES

METU Amateur Photography Club

- Organizing photography festivals
- Contributing to exhibitions

INTERESTS AND
HOBBIES

Basketball, Photography, Movies

REFERENCES

Prof. Dr. Faruk Polat,

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