

Hüseyin Aydın

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Education

Ph.D., Computer Engineering,
Middle East Technical University, 2017 - 2022
Supervisor: Prof. Dr. Faruk Polat
Co-supervisor: Dr. Erkin Çilden
GPA: 3.64/4.00

M. Sc., Computer Engineering,
Middle East Technical University, 2015 - 2017
Supervisor: Prof. Dr. Faruk Polat
GPA: 3.71/4.00

B. Sc., Computer Engineering,
Middle East Technical University, 2010 - 2015
GPA: 3.41/4.00

Work Experience

Middle East Technical University
Assistant Professor, Sep, 2025 - Present

Utrecht University
Post-Doctoral Researcher, Aug, 2023 - Jul, 2025
Supervisor: Prof. Dr. Pınar Yolum

Middle East Technical University
Research and Teaching Assistant, Oct, 2015 - Sep, 2025

Dissertations

“Using Frequencies of Transitions to Improve Reinforcement Learning with Hidden States”
Ph.D. Thesis, Middle East Technical University, Dep. of Computer Engineering,
2022

“Automatic Identification of Transitional Bottlenecks in Reinforcement Learning under Partial Observability”
M.Sc. Thesis, Middle East Technical University, Dep. of Computer Engineering,
2017

Research Projects

Solving Partially Observable Privacy Conflicts with Multi-Agent Reinforcement Learning
Supported by the Scientific and Technological Research Council of Turkey (TÜBİTAK) through BİDEB 2219 International Postdoctoral Research Scholarship Program.
Aug, 2023 - Jul, 2025

Program and Capacity Management System for Council of Higher Education (YÖK)
Supported by the Scientific and Technological Research Council of Turkey (TÜBİTAK) under Grant No. 115G086.
Sep, 2018 - May, 2020

A Stakeholder Oriented Intelligent System for Energy Retrofit

Supported by British Council and the Scientific and Technological Research Council of Turkey
(TÜBİTAK) under Grant No. 217M519.
June, 2018 - Sep, 2018

Subgoal Identification in Sequential Decision Making under Partial Observability

Supported by the Scientific and Technological Research Council of Turkey
(TÜBİTAK) under Grant No. 215E250.
May, 2016 - May, 2018

Journal Publications

H. Aydın, O. Ulusoy, Ilaria Tiddi, P. Yolum, “Analyzing Privacy Dynamics within Groups using Gamified Auctions”, [Submitted to] *International Journal of Human-Computer Interaction*, May, 2025

M. İlayda Bal, H. Aydın, C. İyigün, F. Polat, “Potential-based reward shaping using state-space segmentation for efficiency in reinforcement learning”, *Future Generation Computer Systems*, Vol. 157, pp.469-484, August, 2024, <https://doi.org/10.1016/j.future.2024.03.057>

M. İlayda Bal, C. İyigün, F. Polat, H. Aydın, “Population-based exploration in reinforcement learning through repulsive reward shaping using eligibility traces”, *Annals of Operations Research*, pp.1-33, January, 2024, <https://doi.org/10.1007/s10479-023-05798-1>

H. Aydın, E. Çilden, F. Polat, “Using chains of bottleneck transitions to decompose and solve Reinforcement Learning tasks with hidden states”, *Future Generation Computer Systems*, Vol. 133, pp.153-168, August, 2022, <https://doi.org/10.1016/j.future.2022.03.016>

Conference Publications

E. Erdoğan, H. Aydın, F. Dignum, R. Verbrugge, P. Yolum, “Mitigating Privacy Conflicts with Computational Theory of Mind”, In *AAMAS 2025, The 24th International Conference on Autonomous Agents and Multiagent Systems*, May, 2025, Detroit, Michigan, USA, <https://dl.acm.org/doi/abs/10.5555/3709347.3743586>

H. Aydın, “Assisting Users in Privacy Conflicts with Partially Observable Multi-Agent Reinforcement Learning” In *HHAI 2024, 3rd International Conference on Hybrid Human Artificial Intelligence*, June, 2024, Malmo, Sweden <https://doi.org/10.3233/FAIA240182>

H. Aydın, E. Çilden, F. Polat, “Compact Frequency Memory for Reinforcement Learning with Hidden States” In *PRIMA 2019, 22th International Conference on Principle and Practice of Multi-agent Systems*, October, 2019, Torino, ITALY https://doi.org/10.1007/978-3-030-33792-6_26

H. Aydın, E. Çilden, F. Polat, “Using Transitional Bottlenecks to Improve Learning in Nearest Sequence Memory Algorithm” In *ICTAI 2017, 29th International Conference on Tools with Artificial Intelligence*, November, 2017, Boston, MA, USA, <https://doi.org/10.1109/ICTAI.2017.00033>

M. Gençtürk, E. Alpay, G. B. L. Ertürkmen, A. Doğaç, H. Aydın, “Self-Management of Patients with Severe Arthritis through a Personal Health System: the Turkish Case Study in the PALANTE Project”, In *eChallenges 2014 Conference*, October, 2014, Belfast, IRELAND <https://ieeexplore.ieee.org/document/7058183>

Translations	H.Aydın, F. Yarman Vural, “Derin Modellerin Eğitiminde Eniyileme” [Optimization for Training Deep Models]. In “<i>Derin Öğrenme</i>” <i>[Deep Learning (Goodfellow et. al.)]</i> (pp. 273 - 317). Buzdağı Yayınevi, October, 2018, Ankara, TURKEY H.Aydın, F. Yarman Vural, “Doğrusal Faktör Modelleri” [Linear Factor Models]. In “<i>Derin Öğrenme</i>” <i>[Deep Learning (Goodfellow et. al.)]</i> (pp. 493 - 504). Buzdağı Yayınevi, October, 2018, Ankara, TURKEY	
Poster Presentations & Demos	H. Aydın, K. Dubois-Godin, L. G. Braz, F. D. Hengst, K. Baraka, M. M. Çelikok, A. Sauter, S. Wang, F. A. Oliehoek, “Towards an Experimentation Platform for Hybrid Human-AI Sequential Decision-Making”, In HHAI 2025: 4th International Conference on Hybrid Human-Artificial Intelligence, June, 2025, Pisa, Italy. H. Aydın, K. Dubois-Godin, L. G. Braz, F. D. Hengst, K. Baraka, M. M. Çelikok, A. Sauter, S. Wang, F. A. Oliehoek, “SHARPIE: A Modular Framework for Reinforcement Learning and Human-AI Interaction Experiments”, In <i>Collaborative AI and Modeling of Humans, AAAI Bridge Program 2025</i>, preprint available on arXiv:2501.19245, February, 2025, Philadelphia, Pennsylvania, USA	
Teaching	CENG111 - Intr. to Computer Engineering Concepts: 2025 Fall CENG240 - Prog. with Python for Engineers: 2022 Fall CENG310 - Alg. & Data Struc. with Python: 2022 Spring	
Other Professional Activities	P. Comm., Inter. Conf. on Hybrid Human Artificial Intelligence (HHAI): 2024, 2025 P. Comm., European Conference on Artificial Intelligence (ECAI): 2024, 2025 P. Comm., Inter. Conf. on Pract. App. of Agents & Multi-Agent Systems (PAAMS): 2025	
Languages	Turkish (native), English (advanced), Italian (beginner), Dutch (beginner)	
Skills	Python, Haskell, C/C++, Java, Vim, Eclipse, Django, Flask	
References	Prof. Dr. Faruk Polat Department of Computer Engineering Middle East Technical University polat@ceng.metu.edu.tr	Prof. Dr. Göktürk Üçoluk Department of Computer Engineering Middle East Technical University ucoluk@ceng.metu.edu.tr
	Prof. Dr. Pınar Yolum Dep. of Information and Computing Sciences Utrecht University p.yolum@uu.nl	Dr. Shihan Wang Dep. of Information and Computing Sciences Utrecht University s.wang2@uu.nl