Dogan Can Cicek

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Education

September 2022	Bilkent University, Ankara, Turkey
September 2019	Electrical & Electronics Engineering Department, M.S.
	Advisor: Prof. Suleyman Serdar Kozat
	with High Honors
June 2018	Bilkent University, Ankara, Turkey
September 2013	Electrical & Electronics Engineering Department, B.S.
	with Honors
June 2018	Bilkent University, Ankara, Turkey
September 2015	Economics, Minor
	with Honors
June 2013	Ankara High School of Science
September 2009	**with High Honors**

Work Experience

August 2021	Databoss Security and Analytics, Ankara, Turkey
December 2018	*Machine Learning Researcher*
September 2017	ASELSAN, Ankara, Turkey
August 2017	*Intern*
September 2016	NOKIA, Istanbul, Turkey
August 2016	*Intern*

Honors & Achievements

- 623rd Place in SBS in 2009 among 1 million primary school graduates.
- 510th Place in YGS in 2013 among 2 million high school graduates.
- Merit Based 5G and Beyond Graduate Student Scholarship Programme (During graduate studies)

Teaching & Academic Activities

- Teaching Assistant for **EEE 102-Digital Electronics** in Fall 2019 and Spring 2020 Terms at Bilkent University
- Teaching Assistant for **EEE 501-Linear System Theory** in Fall 2021 at Bilkent University
- Teaching Assistant for **MATH 242-Engineering Mathematics II** in Fall 2021 and Spring 2022 Terms at Bilkent University
- Lectured last three lectures of **EEE485/585-Statistical Learning and Data Analytics** course in Fall 2020 Term. Covered the essential concepts and algorithms of Reinforcement Learning and Deep Reinforcement Learning.
- Supervised a group of undergraduate student for the **EEE493/494-Industrial Design Project** course, collaborated with Bilkent University. Aim of the project is to navigate an autonomous vehicle that includes Lidar, ZED Camera, and IMU sensors for a point-to-point navigation task by using end-to-end deep reinforcement learning. I also help them the coding process of the project. VIDEO 1, VIDEO 2, VIDEO 3, VIDEO 4, VIDEO 5.
- Presented most recent advances in Deep Reinforcement Learning and gave more details on How to build a DQN agent, some challenges that may occur, and How to solve them. I used DQN to obtain a reasonable policy on a popular ATARI game, MARIO. Here is my presentation, **In Turkish**: https://www.youtube.com/watch?v=d-zQrNVGfFg

Selected Coursework

- Bilkent University: **CS 551-Pattern Recognition: A**,
- Bilkent University: **CS 559-Deep Learning: A**,
- Bilkent University: **CS 550-Machine Learning: A**,
- Bilkent University: **EEE 586-Statistical Foundations of Natural Language Processing: A**,
- Bilkent University: **EEE 501-Linear System Theory: A-**,
- Bilkent University: **MATH 565-Mathematical Foundations of Data Science: A**.

Thesis

1. **Dogan C. Cicek**, **Novel Experience Replay Mechanisms to Improve the Performance of the Deep Deterministic Policy Gradients Algorithms**
   Available at: http://repository.bilkent.edu.tr/handle/11693/110839

Publications

1. **Dogan C. Cicek**, Furkan Mutlu, Enes Duran, Suleyman S. Kozat, **navTD3: A Novel Deep Reinforcement Learning Method for Autonomous Vehicle Control**, IEEE Robotics and Automation Letters, Under review.
   Available at: Link
2. **Dogan C. Cicek**, Aykut Koc, Suleyman S. Kozat, **Enhancing Deep Deterministic Policy Gradients on Continuous Control Tasks with Decoupled Prioritized Experience Replay**, IEEE Robotics and Automation Letters, Under review.
   Available at: Link
3. **Dogan C. Cicek**, Enes Duran, Baturay Saglam, Furkan Mutlu, Suleyman S. Kozat, **Off-Policy Correction for Deep Deterministic Policy Gradient Algorithms via Batch Prioritized Experience Replay**, **Accepted at** IEEE International Conference on Tools with Artificial Intelligence(ICTAI) 2021.
   Available at: Link
4. **Dogan C. Cicek**, Enes Duran, Baturay Saglam, Kagan Kaya, Furkan Mutlu, Suleyman S. Kozat, **AWD3: Dynamic Reduction of the Estimation Bias**, **Accepted at** IEEE International Conference on Tools with Artificial Intelligence(ICTAI) 2021.
   Available at: Link
5. Baturay Saglam, **Dogan C. Cicek**, Furkan Mutlu, Suleyman S. Kozat, **Off-Policy Correction for Actor-Critic Methods without Importance Sampling**, Journal of Machine Learning Research, Under review. Link
6. Baturay Saglam, **Dogan C. Cicek**, Furkan Mutlu, Suleyman S. Kozat, **Safe and Robust Experience Sharing for Deterministic Policy Gradient Algorithms**, **Accepted at** ICML 2022 Workshop on Responsible Decision Making in Dynamic Environments,
   Available at: Link
7. Baturay Saglam, Enes Duran, **Dogan C. Cicek**, Suleyman S. Kozat, **Estimation Error Correction in Deep Reinforcement Learning for Deterministic Actor-Critic Methods**, **Accepted at** IEEE International Conference on Tools with Artificial Intelligence(ICTAI) 2021.
   Available at: Link
8. Baturay Saglam, Enes Duran, **Dogan C. Cicek**, Furkan Mutlu, Suleyman S. Kozat, **Parameter-Free Deterministic Reduction of the Estimation Bias in Continuous Control**, **Accepted at** Neural Processing Letters,
   Available at: Link
9. Baturay Saglam, Furkan Mutlu, **Dogan C. Cicek**, Suleyman S. Kozat, **Actor Prioritized Experience Replay**, **Accepted at** The Deep Reinforcement Learning Workshop NeurIPS 2022,
   Available at: Link

Social Activities

- January 2014 - June 2018: Sports Writer at GazeteBilkent
  I wrote mainly on NBA and MLB. Available at:https://www.gazetebilkent.com/author/525/
- September 2011 - June 2012: Vice President of the Ankara High School of Science Student Council.
- September 2009 - June 2013 : Representative of the Class '13 of Ankara High School of Science.

Projects

August 2022 – January 2023 — **Reinforcement Learning Based Herd Strategy Development**
Leading our team on a competition to design deep reinforcement learning algorithms that learn the most effective offensive, defensive and resource gathering strategies for mixed swarms from air and ground vehicles. The competition is organized by Defence Industry Agency of Turkey. Our team is one of the finalists and competition is ongoing. Comptetion website: https://y3.ssyz.org.tr/y3/competition/suru

December 2021 – February 2022 — **CarRacerTD3**
Developed a Deep Reinforcement Learning agent that uses handcrafted features that extracted from the Car Racer learning environment of the OpenAI Gym. Unlike other solutions that tackles the given driving task by using On-Policy Deep Reinforcement Learning algorithms, especially PPO, I used TD3. Code is available at: https://github.com/doganjr/carRaceTD3

March 2020 – August 2021 — **Autonomous Driving with Deep Reinforcement Learning**
for DATABOSS Security and Analytics, Inc.
Machine Learning Researcher, Responsible for research and development process
Developed algorithms based on TD3, DDPG, DQN and their variants with a meaningful reward shaping to navigate a designated vehicle by using end-to-end deep reinforcement learning.

March 2021 – April 2021 — **MarioDQN**
Developed a Mario Agent that uses a variant of the DQN algorithm to accomplish the first stage of the first world of the Mario Game. Code is available at: https://github.com/doganjr/MarioDQN

January 2020 – June 2020 — **Online Goal Probability Prediction Using Live Commentary Data**
Proposed a method to predict goal probability in a football match during the remaining playing time for both home and away teams. Used publicly available score and commentary providing websites to crawl match commentary data. One-hot encoded each word in the corpus. Several machine learning modules like Autoencoders, LSTMs, and Deep Neural Networks have been used. Report is available at (Code is at the Appendix section): Report & Code

August 2019 – December 2018 — **Spatiotemporal Event Prediction**
for DATABOSS Security and Analytics, Inc.
Machine Learning Researcher, Responsible for research and development process
Designed various deep learning algorithms to predict what kind of events would be occurred in a given period of time, besides, the location of the event predicted event.

June 2014 – December 2014 — **Angry Balls**
An Android/iOS Game which is easy and quick to play and learn its basics.
Developed it with LibGDX library and Java.

Languages and Test Scores

- Turkish (Native)
- English (TOEFL iBT: 97/120)
- GRE Quantitative: 170/170
- ALES: 95.2/100

Computer Skills

Programming
- MATLAB
- Pytorch
- Python
- Java

Programs & Tools
- PyCharm
- LaTeX
- Sublime
- Git

Research Interests

- Autonomous Driving
- Deep Reinforcement Learning
- Deep Learning
- Machine Learning