Yasar Sinan Nasir

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EDUCATION

Northwestern University, Evanston, IL
Ph.D. Student, Electrical Engineering, September 2016-Present — Cur. GPA: 4.00
Adviser: Prof. Dongning Guo

Northwestern University, Evanston, IL
Master of Science, Electrical Engineering, September 2016-March 2018 — GPA: 4.00
Adviser: Prof. Dongning Guo

Bilkent University, Ankara, Turkey
Bachelor of Science, Electrical and Electronics Engineering, 2012-2016 — GPA: 3.98

INTERESTS

I am a passionate ML practitioner. My research interests include machine learning with a focus on multi-agent deep reinforcement learning applications, software-defined radios, wireless communications and networking with emphasis on large-scale dynamic resource management problems in future generation cellular networks.

PUBLICATIONS

Y. S. Nasir and D. Guo, "Multi-agent deep reinforcement learning for dynamic power allocation in wireless networks," *IEEE Journal on Selected Areas in Communications*, vol. 37, no. 10, pp. 2239-2250, 2019. Available: 10.1109/jsac.2019.2933973.

Y. S. Nasir and D. Guo, "Deep reinforcement learning for distributed dynamic power allocation in wireless networks," arXiv preprint arXiv:1808.00490, 2018.

PROJECTS

Hack Mobile 2019: Participated to Hack Mobile 2019 with a team of 4 Qualcomm interns. In this 16-hour Hackathon, we created a wearable Android program called Fitbeat. Fitbeat optimizes fitness programs by playing music from Spotify at optimal tempo that matches with user's heart rate. July 2019.

DARPA Spectrum Collaboration Challenge: Key member of Team Aipaca. My adviser Prof. Dongning Guo is the team leader and we are working with the collaborators from the Chinese University of Hong Kong. The team successfully managed to participate Finals of Preliminary Event 1 and 2 that were held in Baltimore, MD. The project requires expert skills in Python, GNURadio, Git, LXC Containers and experimentation using software defined radios. We built a smart wireless network composed of 10 nodes that will collaborate with other teams to satisfy DARPA's mandated outcomes. December 2018.

Senior Project: Project title: "Dynamic Scheduling in Frequency Reuse-1 Heterogeneous Network". The project is completed under the supervision of Prof. Nail Akar. A final report was presented. May 2016.

Ad-Hoc Social Networking for Google Android Platform: An EEE 436 Project with four group members. It was ranked among the highest projects during the final demonstration. Without requiring rooting of Google Android devices, we performed text messaging and profile sharing with basic profile images through our Ad-Hoc social network which covers Bilkent University Campus area. May 2016.

Photo-voltaic Energy Harvesting System Development: An industrial design project supported by Military Electronic Industries (ASELSAN), of Turkey. We were a team of six. We developed a solar power bank, its performance increased by using double axis solar tracking and maximum power point algorithms. Successfully presented the project in Second Industrial Design Project Fair of Bilkent University. May 2016.

SKILLS

C, C++, Python (Preferred), TensorFlow, Pytorch, Keras, OpenAI Gym, GNURadio, Java, Assembly (8051), LaTeX, VHDL, Linux, Unix, Git, LXC containers.
Apps: Android Studio, AutoCAD, Cadence, LTSpice, MCU 8051, Microsoft Office, MATLAB, Multisim, Simulink, Sketchup, Xilinx ISE, Bitbucket.

EXPERIENCE

Corporate R&D Intern
Qualcomm
June 2019-September 2019 San Diego, CA
Developed and applied reinforcement learning based algorithms to solve a constrained optimization problem and to optimize settings of a non-linear system. Specifically, we used proximal policy optimization (PPO) and trust region policy optimization (TRPO). In addition to simulations, tested our approach on hardware. Gleaned and presented the results to the team for potential consideration of reinforcement learning over conventional optimization methods.
Mentor: Sherif Shakib
Manager: Aidin Bassam

Teaching Assistant (TA)
Northwestern University
January 2019-June 2019 Evanston, IL
2019 Winter: TA of EECS 435 - Deep Learning Foundations from Scratch.
2019 Spring: TA of EECS 333 - Introduction to Communication Networks. (organized midterm and final exams)

Research Assistant
Northwestern University
September 2016-June 2019 Evanston, IL
Working in the Communications and Networking Laboratory.
Adviser: Prof. Dongning Guo.

Bell Labs Summer Intern in 5G Radio
Nokia Bell Labs
June 2018-August 2018 Naperville, IL
Internship projects:

1. "Coexistence of 5G with Satellite Earth Station receivers in 3.7-4.2GHz"
   We submitted the results to the Federal Communications Commission (FCC):
   URL: `https://ecfsapi.fcc.gov/file/102976959340/Nokia%20Comments%20on%203.7%2010-29-2018%20FINAL.pdf`
2. "mm-wave Stadium Deployment" Used CAD Software to model a given stadium in 3D. Run simulations to analyze what is the total number of base stations required for desired coverage and capacity. Results have not been published yet.

Advisers: Eugene Visotsky, Prakash Moorut
Manager: Amitava Ghosh

Research Intern
Fraunhofer Institute for Integrated Circuits (IIS)
June 2015-August 2015 Erlangen, Bavaria, Germany
Internship project: "Realization of Number Estimation Methods for Low Power FID-Tags in an FPGA Platform."
Adviser: Jurgen Frickel

Research Intern
National Magnetic Resonance Research Center
June 2014-August 2014 Ankara, Turkey
The aim of the project was increasing the compressed sensing efficiency and decreasing the time required to achieve a given peak signal-to-noise ratio (PSNR) level for magnetic resonance imaging (MRI) by creating a software program that fits the best possible probability density function and its mask for an MRI image. Another goal was finding a general probability density function that fits well for different types of MRI images.
Adviser: Assoc. Prof. Tolga Cukur

AWARDS

2016: Valedictorian, Top Ranked Student among 2016 Graduates of Bilkent University Faculty of Engineering
2016: Top Ranked Student among 2016 Graduates of Bilkent University Department of Electrical and Electronics Engineering
2016: Academic Excellence Award, Bilkent University Department of Electrical and Electronics Engineering
2014: Bilkent University History of Turkey Project Competition: First Prize out of 462 projects
2012-2016: Fellowship, Bilkent University
2012: Nationwide University Entrance Exam, LYS. Rank: 290th among 600,000 high school graduates
2012: Nationwide University Entrance Exam, YGS. Rank: 106th among 2,000,000 high school graduates

PROFESSIONAL SERVICE

Referee Service
IEEE Journal on Selected Areas in Communications, IEEE Transactions on Wireless Communications, IEEE Transactions on Mobile Computing, IEEE Communications Letters, IEEE Wireless Communications Letters, IEEE International Workshop on Signal Processing Advances in Wireless Communications (SPAWC) 2019.