

MOTASEM ALFARRA

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King Abdullah University of Science and Technology, Thuwal, Saudi Arabia

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EDUCATION

PhD, King Abdullah University of Science and Technology *May 2020 - Present*

Department of Electrical and Computer Engineering

Advisor: Bernard Ghanem

MSc, King Abdullah University of Science and Technology *January 2019 - May 2020*

Department of Electrical Engineering

Overall GPA: 4.0/4.0

Advisor: Bernard Ghanem

Advisory Committee: Bernard Ghanem, Wolfgang Heidrich, Xiangliang Zhang (KAUST)

Thesis: Applications of Tropical Geometry in Deep Neural Networks

BSc, Kuwait University *September 2014 - May 2018*

Department of Electrical Engineering

Overall GPA: 4.0/4.0

TEACHING/RESEARCH EXPERIENCE

- **Research Internship** *October 2021 - Present*
University of Oxford
Oxford, United Kingdom
- **Teacher Assistance** *January 2020 - May 2020*
Introduction to Computer Vision (PhD course)
KAUST, Saudi Arabia
- **Guest Lecturer** (1 Lecture) *July 2020*
Title: Adversarial Attacks and Network Robustness.
Universidad Panamericana, Mexico
- **Research Assistance** *September 2017 - May 2018*
Developed algorithms and implemented network simulations.
Kuwait University, Kuwait.

PUBLICATIONS

(* indicates equal contribution)

- Motasem Alfarra*, Adel Bibi*, Naeemullah Khan, Philip H. S. Torr, Bernard Ghanem. "DeformRS: Certifying Input Deformations with Randomized Smoothing", Association for the Advancements of Artificial Intelligence (AAAI). 2022
- Motasem Alfarra, Juan C. Pérez, Ali Thabet, Adel Bibi, Philip H. S. Torr, Bernard Ghanem. "Combating Adversaries with Anti-Adversaries", Association for the Advancements of Artificial Intelligence (AAAI) 2022
- Motasem Alfarra*, Francisco Eiras*, M. Pawan Kumar, Philip H. S. Torr, Puneet K. Dokania, Bernard Ghanem, Adel Bibi*. "ANCER: Anisotropic Certification via Sample-wise Volume Maximization", arXiv. 2021
- Juan C Pérez, Motasem Alfarra, Guillaume Jeanneret, Laura Rueda, Ali Thabet, Bernard Ghanem, Pablo Arbeláez. "Enhancing Adversarial Robustness via Test-time Transformation Ensembling", (AROW-ICCVW) 2021

- Motasem Alfarra*, Juan C. Pérez*, Adel Bibi, Ali Thabet, Pablo Arbeláez, Bernard Ghanem. "Rethinking Clustering for Robustness", British Machine Vision Conference (BMVC) 2021
- Motasem Alfarra*, Adel Bibi*, Philip H. S. Torr, Bernard Ghanem. "Data Dependent Randomized Smoothing", arXiv. 2020
- Motasem Alfarra*, Juan C. Pérez*, Guillaume Jeanneret*, Adel Bibi, Ali Thabet, Bernard Ghanem, Pablo Arbeláez. "Gabor Layers Enhance Network Robustness", European Conference in Computer Vision (ECCV), Virtual. 2020
- Motasem Alfarra, Slavomír Hanzely, Alyazeed Albasyoni, Bernard Ghanem, Peter Richtárik "Adaptive Learning of the Optimal Batch Size of SGD" (OPT-NeurIPSW.) 2020
- Motasem Alfarra*, Adel Bibi*, Hasan Hammoud, Mohamed Gaafar and Bernard Ghanem. "On the Decision Boundaries of Neural Networks: A Tropical Geometry Perspective", arXiv. 2020
- Mohammed W. Baidas, Emad Alsusa, Motasem Alfarra, Mubarak Al-Mubarak "Multi-relay selection in energy-harvesting cooperative wireless networks: game-theoretic modeling and analysis", Telecommunication Systems. 2020

AWARDS AND HONORS

- **Best Student Award** March 2019
Awarded from the emir of Kuwait H.H. Sabah Al-Ahmad Al-Jaber Al-Sabah as being the top graduate from the Electrical Engineering department.
Kuwait, Kuwait
- **KAUST Fellowship** January 2019
A generous fellowship provided to continue my MSc/PhD studies at KAUST
Thuwal, Saudi Arabia
- **Best Student Award** 2016-2018
Awarded the best student award in the two academic years 2016-2017 and 2017-2018 from Kuwait's Minister of Education.
Kuwait, Kuwait
- **National Debating Competition** November 2017
Won the national debating competition and was awarded as one of the top 10 debaters.
Kuwait, Kuwait
- **Dean's Award Honor List (6 consecutive semesters)** November, 2015 - March 2018
Awarded by the engineering dean for ranking first over 4 consecutive years
Kuwait, Kuwait
- **Scholarship by the Emir of Kuwait** September 2014
Fully funded scholarship to join the engineering school by Kuwait's Emir
Kuwait, Kuwait
- **High School Examinations (6th/~23,000)** June 2014
Award for ranking among the top 50 students in high school examinations
Kuwait, Kuwait

SKILLS

- **Programming Skills**
Python, Pytorch, C++, MATLAB
- **Software Packages**
Git, Anaconda, Latex, Arduino, AutoCAD