

# MOTASEM ALFARRA

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## EDUCATION

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<b>PhD, King Abdullah University of Science and Technology</b> Department of Electrical and Computer Engineering Advisor: Bernard Ghanem	<i>May 2020 - Present</i>
<b>MSc, King Abdullah University of Science and Technology</b> Department of Electrical Engineering Advisor: Bernard Ghanem Advisory Committee: Bernard Ghanem, Wolfgang Heidrich, Xiangliang Zhang (KAUST) Thesis: Applications of Tropical Geometry in Deep Neural Networks	<i>January 2019 - May 2020</i> Overall GPA: 4.0/4.0
<b>BSc, Kuwait University</b> Department of Electrical Engineering	<i>September 2014 - May 2018</i> Overall GPA: 4.0/4.0

## TEACHING/RESEARCH EXPERIENCE

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- **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

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(\* indicates equal contribution)

- Motasem Alfarra\*, Adel Bibi\*, Naeemullah Khan, Philip H. S. Torr, Bernard Ghanem. "DeformRS: Certifying Input Deformations with Randomized Smoothing", AAAI Conference on Artificial Intelligence. 2022
- Motasem Alfarra, Juan C. Pérez, Ali Thabet, Adel Bibi, Philip H. S. Torr, Bernard Ghanem. "Combating Adversaries with Anti-Adversaries", AAAI Conference on Artificial Intelligence. 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

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- **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 (6<sup>th</sup>/~23,000)** June 2014  
Award for ranking among the top 50 students in high school examinations  
Kuwait, Kuwait

## SKILLS

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