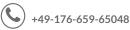
# Ahmed Osman



osman.ai







# Education

## MS | Computer Science

University of Freiburg | 2017

- Research: Computer Vision, Machine Learning
- Advisor: Thomas Brox
- Collaborators: Wojciech Samek
- GPA: 3.75 (US) 1.6 (German)

# BS | Computer & Communications Engineering

Alexandria University | 2014

- CS GPA: 3.48
- Concentration in AI/Computer Vision

# Skills

## **Programming Languages**

Proficient

Python • C • C++

Experienced

CUDA • Java • Matlab • C#

## **Machine Learning**

Frameworks
Pytorch • Keras • Caffe
Tensorflow • Torch7
Algorithms
Attention • Autoencoders
GANs • CNNs • RNNs

### **Tools**

Containerization

Kubernetes • Singularity • Docker

Slurm • SGE • TORQUE OS

Linux • Mac • Windows

## Languages

Fluent

English • Arabic

Basic

German • French

# Related Activities

### **Reviews**

I reviewed papers for ICML 2020, AAAI 2020, ICIP 2020, MICCAI 2019, ICASSP 2019, ACL 2019.

#### Fun

I run 50+ services on a 4-node multi-architecture (x86/ARM) Kubernetes cluster at home.

# Experience

## Fraunhofer HHI | Machine Learning Researcher

Nov. 2017 - Present

- Create a synthetic dataset for automatic quantitative evaluation of model interpretability methods on visual question answering (VQA). [Dataset/Code 6]
- Develop self-supervised attention mechanisms to improve state-of-the-art VQA models.
- Implement compression methods for MobileNet reducing parameters by 51% without performance loss and winning the MPEG call for neural network compression standard.
- Conduct pilot ML experiments on the VVC MPEG video coding standard.
- Co-manage a 13-server multi-GPU cluster used by the entire ML group.

# Fraunhofer HHI | Machine Learning Research Assistant Feb. 2017 - Oct. 2017

- Developed a novel attention mechanism for multi-modal tasks (VQA) performing 9.7% better than traditional attention mechanisms.
- Demo sexhibited at CEBIT18, Tagesspiegel 2018, LNDW 2018, LNDW 2019, MS Wissenschaft 2019 & ScienceStation 2019.

# SRTA City - Informatics Institute | Research Assistant

Oct. 2014 - Mar. 2015

- Designed and coded a novel GPU FFT-based convolutional neural network framework, resulting in superior performance compared to other frameworks (Caffe, Torch7, Theano) for large filters.
- Developed a custom GPU-accelerated real-time object tracking & navigation system performing 13x faster than an equivalent OpenCV implementation.

### IRON Labs | Full Stack Software Engineer

Sep. 2012, Nov. 2013

- Co-designed and developed a clinic management software from the ground up, including requirement analysis, software design, implementation, and testing.
- Created and executed software test units for an enterprise resource planning software (ERP).

## Alexandria Uni. Computer Vision Lab | Student Researcher

Aug. 2013 - Oct. 2013

# **Publications**

Published/Accepted

- Osman & Samek, 2019: "Dual Recurrent Attention Units for Visual Question Answering" CVIU Journal %
- Arras, Osman, Múller, & Samek, 2019: "Evaluating Recurrent Neural Network Explanations" ACL Blackbox-NLP workshop
- Wiedemann, Kirchhoffer, Matlage, Haase, Marban, Marinc, Neumann, **Osman**, Marpe, Schwarz, Wiegand, & Samek, 2019: "DeepCABAC: Context-adaptive binary arithmetic coding for deep neural network compression" *ICML ODML-CDNNR Workshop*

#### **Preprints**

• Osman\*, Arras\* & Samek, 2020: "Towards Ground Truth Evaluation of Visual Explanations" [code] %

#### **Posters**

• Osman & Samek, 2018: "Dual Recurrent Attention Units for Visual Question Answering" CVPR VQA Workshop %