Ahmed Osman

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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

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
HPC
Slurm • SGE • TORQUE
OS
Linux • Mac • Windows
IDEs
Vim • Jupyter • VSCode
Web
JavaScript • Jekyll • PHP

Related Activities
Reviews
I reviewed papers for AAAI 2020, MICCAI 2019, ICASSP 2019, ACL 2019.
Fun
I run 40+ services on a bare-metal 6-node multi-architecture Kubernetes cluster at home.

Languages
Fluent
English • Arabic
Basic
German • French

Experience

Fraunhofer HHI | Machine Learning Researcher
Nov. 2017 - Present
- Develop methods to improve state-of-the-art text-specific visual question answering models.
- Develop adversarial attacks for multi-modal & NLP tasks.
- Implement parametric compression methods for the winning MPEG call for neural network compression.
- Investigate methods for medical visual question answering.
- Investigate methods to interpret multi-modal deep learning models.
- Conduct pilot ML experiments on the upcoming MPEG video 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 (Visual Question Answering).
- Exhibited at CEBIT18, Tagesspiegel 2018, LNDW 2018, LNDW 2019, MS Wissenschaft 2019 & ScienceStation 2019.
- Demo: https://lrpserver.hhi.fraunhofer.de/visual-question-answering.

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 plans for an enterprise resource planning software (ERP).

Alexandria Uni. Computer Vision Lab | Student Researcher
Aug. 2013 – Oct. 2013

Al Manbat Computer Inc. | Software Developer intern
Jun. 2012 - Aug. 2012

Papers / Posters

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*

Posters
- Osman & Samek, 2018: "Dual Recurrent Attention Units for Visual Question Answering" *CVPR VQA Workshop*