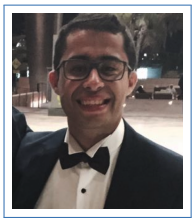

Adel Bibi

Curriculum Vitae

Education

2016–present **PhD, Electrical Engineering**, *KAUST*, Thuwal, Kingdom of Saudi Arabia.
Advisor: Professor Bernard Ghanem

2014–2015 **MSc, Electrical Engineering**, *KAUST*, Thuwal, Kingdom of Saudi Arabia.
Advisor: Professor Bernard Ghanem
Thesis: Advances in RGB and RGBD Generic Object Trackers
GPA: 4.0/4.0

2010–2014 **BSc, Electrical Engineering**, *Kuwait University*, Kuwait.
GPA: 3.99/4.0 (EE major: 3.99/4.0)

Master Thesis

Title "*Advances in RGB and RGBD Generic Object Trackers*"
Advisor Professor Bernard Ghanem
Thesis Comitte: Professor Wolfgang Heidrich
Professor Tareq Al-Naffouri

Abstract Visual object tracking is a classical and very popular problem in computer vision with a plethora of applications such as vehicle navigation, human computer interface, human motion analysis, surveillance, auto-control systems and many more. Given the initial state of a target in the first frame, the goal of tracking is to predict states of the target over time where the states describe a bounding box covering the target. Despite numerous object tracking methods that have been proposed in recent years, most of these trackers suffer a degradation in performance mainly because of several challenges that include illumination changes, motion blur, complex motion, out of plane rotation, and partial or full occlusion, while occlusion is usually the most contributing factor in degrading the majority of trackers, if not all of them. This thesis is devoted to the advancement of generic object trackers tackling different challenges through different proposed methods. The work presented propose four new state-of-the-art trackers. One of which is 3D based tracker in a particle filter framework where both synchronization and registration of RGB and depth streams are adjusted automatically, and three works in correlation filters that achieve state-of-the-art performance in terms of accuracy while maintaining reasonable speeds.

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Awards

May 2016 — My graduation project (SAIC) was nominated to the top 5 projects to present Kuwait University in a regional competition.

December 2015 — Ranked first among my graduating class (MSc) with a GPA of 4.0/4.0.

November 2014 — Award for participating in Falling Walls Lab competition in KAUST.

June 2014 — MSc/PhD scholarship at King Abdullah University of Science and Technology (KAUST Fellowship).

May 2014 — Award from Kuwait Foundation for the Advancement of Sciences for my graduation project (SAIC).

May 2014 — Best graduation project in Electrical Engineering for the year (SAIC).

2010–2014 — Earned Dean's Honor List award for four consecutive years as an undergraduate.

2014 — Ranked first among my graduating class (BSc) with a GPA of 3.99/4.

November 2013 — Chosen among 200 students to present Kuwait University in the 7th IEEE GCC Conference in Doha, Qatar.

October 2011 — Award for taking 4th place in the 1st National Robotics Competition of Kuwait Colleges and Universities.

September 2010 — Attained academic scholarship from the minster of higher education for my undergraduate studies at Kuwait University.

September 2010 — Ranked 31st in all Kuwait in high-school final examinations among around 15K.

Teaching Experience

Spring 2016 — Teaching Assistant AMCS211: Numerical Optimization, KAUST.

Instructor: Professor Bernard Ghanem, KAUST.

Spring 2016 — Invited for a lecture on Numerical Optimization, KAUST.

Fall 2015 — Teaching Assistant EE397: Advanced Topics in Signal Processing (Inroduction to Computer Vision), KAUST.

Instructor: Professor Bernard Ghanem, KAUST.

Research Experience

King Abdullah University of Science and Technology

2016–present — **Solving Large Scale Constrained Unsupervised Clustering Problems Using Integer Programs**.

I'm currently working on solving the exact integer program that includes several constraints from partially labeled data for unsupervised clustering applications.

2016–present — **Generic Boundary Conditions for Correlation Trackers**.

I'm currently working on a unified framework for handling generic -Dirichlet, Neumann and Circular- boundary conditions for correlation based trackers.

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2016–present **Solving Large Scale Lasso Problems Efficiently**.

I'm currently working on solving large scale Lasso problems very efficiently using constrained ADMM for applications in computer vision that include tracking, and convolutional sparse coding.

2014–2015 **3D Part-Based Sparse Tracker**.

I have worked on developing a part-based sparse tracker in a particle filter framework where both the motion and appearance model are formulated in 3D. The motion model is adaptive and directed according to a simple yet powerful occlusion handling paradigm, which is intrinsically fused in the motion model. Also, since 3D trackers are sensitive to synchronization and registration noise in the RGB and depth streams, we have proposed automated methods to solve these two issues. This work lead to a CVPR15 publication.

2014–2015 **Correlation Filter-Based Trackers**.

I have worked on solving several challenges that face correlation trackers in general that include fast motion, occlusion and multi-template training. In the work, we have shown closed form solutions for the filter training that can accommodate for fast moving objects while training over K different templates. This work lead to three publications (ICCVW15, CVPR16, and ECCV16).

Working Experience

Jan-Mar 2013 **Part-Time Power Engineer**, *Alghanim Industrial Company*, Kuwait.

Description I was supervising an ongoing work on the construction of a Al-Safeer Hotel in the Gulf street in Kuwait. During my 2 months work, I gained hands on experience on the progress of work regarding high voltage conduits, low voltage conduits, communication lines, and backup generator installations.

Languages

Arabic **Native**

English **Professional working proficiency**

Skills

Programming Languages MATLAB, C++, AT, LateX, C (Arduino IDE), Assembly

Hardware Arduino, PIC, Atmega320P, Raspberry Pi, Intel P8051

Interests

Philosophy, Physics, Chess, Traveling, and any thing related to Flat Land.

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Publications

Conference Publications

- Adel Bibi, Matthias Mueller and Bernard Ghanem, "Target Response Adaptation for Correlation Filter Tracking", European Conference in Computer Vision (ECCV 2016) [Spotlight], Amsterdam, Netherlands.
- Adel Bibi, Tianzhu Zhang and Bernard Ghanem, "3D Part-Based Sparse Tracker with Automatic Synchronization and Registration", Computer Vision and Pattern Recognition (CVPR 2016), Las Vegas, USA.
- Tianzhu Zhang, Adel Bibi and Bernard Ghanem, "In Defense of Sparse Tracking: Circulant Sparse Tracker", Computer Vision and Pattern Recognition (CVPR 2016) [Spotlight], Las Vegas, USA.
- Adel Bibi and Bernard Ghanem, "Multi-Template Scale Adaptive Kernelized Correlation Filters", International Conference on Computer Vision Workshop (ICCVW/VOT 2015), Santiago, Chile.

Master's Thesis

- Adel Bibi, "Advances in RGBD and RGBD Generic Object Trackers", Masters Thesis, Electrical Engineering Department, King Abdullah University of Science and Technology.

References

- Two references available upon request.

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