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# Mina A. Makar

## Education

**Ph.D.** in Electrical Engineering  
Stanford University, CA  
**GPA 4.10**

*Sept. 2007 – Expected June 2013*

**M.Sc.** in Electrical Engineering / Communications and Signal Processing  
Faculty of Engineering, Alexandria University, Egypt  
**GPA 4.00**

*Sept. 2004 – Dec. 2006*

**B.Sc.** in Electrical Engineering / Communications and Electronics  
Faculty of Engineering, Alexandria University, Egypt  
**Rank 1 / 421**

*Sept. 1999 – June 2004*

## Core Ph.D. Courses

- Image and Video Compression
- Information Theory
- Convex Optimization
- Digital Image Processing
- Statistical Signal Processing
- Machine Learning

## Core M.Sc. Courses

- Fast Algorithms for Signal Processing
- Introduction to Digital Signal Processing
- Adaptive Signal Processing
- **M.Sc. Thesis** Cellular Radio Network Design Using Particle Swarm Optimization
- Neural Networks
- Image Processing
- DSP Architecture and Circuits

## Research Interests

- Image and Video Coding
- Networked Multimedia Systems
- Computer Vision
- Optimization Methods

## Experience

**Research Assistant** *June 2008 – Present*  
Image, Video and Multimedia Systems (IVMS) Group, EE Dept., Stanford University

**Teaching Assistant** *Sept. 2004 – Aug. 2007*  
EE Dept., Faculty of Engineering, Alexandria University, Egypt

Assisted in teaching the following undergraduate courses

- Signal Processing
- Communications for Electrical Power Systems
- Communication Systems
- Circuit Analysis

## Publications

**M. Makar**, C.-L. Chang, D. Chen, S. Tsai, and B. Girod, "Compression of image patches for local feature extraction," *Proc. IEEE Int. Conf. Acoust., Speech, Signal Processing (ICASSP-09)*, Taipei, Taiwan, April 2009. (*Best Student Paper Finalist*)

C.-L. Chang, **M. Makar**, S. Tsai, and B. Girod, "Direction-adaptive partitioned block transform for color image coding," *IEEE Transactions on Image Processing*, Nov. 2008. *Submitted*

H. Elkamchouchi, H. Elragal and **M. Makar**, "Cellular radio network planning using particle swarm optimization," *Proc. of 24th National Radio Science Conference, NRSC'2007*, Cairo, Egypt, pp. C36, March 2007.

H. Elkamchouchi, H. Elragal and **M. Makar**, "Power control in CDMA system using particle swarm optimization," *Proc. of 24th National Radio Science Conference, NRSC'2007*, Cairo, Egypt, pp. C4, March 2007.

H. Elkamchouchi, H. Elragal and **M. Makar**, "Channel assignment for cellular radio using particle swarm optimization," *Proc. of 23rd National Radio Science Conference, NRSC'2006*, Menoufya, Egypt, pp. C28, March 2006.

## Academic Honors

- Recipient of the Departmental Fellowship for graduate studies from EE Dept., Stanford University, academic year 2007 – 2008
- Ranked 1<sup>st</sup> on the EE Dept., Alexandria University students during the academic years 2000-2001 to 2003-2004
- Ranked 1<sup>st</sup> on the Faculty of Engineering, Alexandria University students upon graduation in the academic year 2003-2004 (B.Sc.)
- Honored by the Egyptian President: Hosni Mubarak in the 'Science Day' in 2004
- Awarded the 'Science Day' prize for obtaining the highest cumulative score over Alexandria University students in the academic year 2003-2004 presented from the Academy of Scientific Research and Technology, Egypt
- Awarded the Prof. Abdelsamie Mustafa prize for the top student of the Faculty of Engineering, Alexandria University in 2004

## Computer Skills

- Software Packages: MATLAB, Mathcad, Microsoft Office
- Programming Languages: C , C++, Python

## Language Skills

- **Arabic** Native
- **English** Fluent

## Professional Activities

- Student member of IEEE
- Helped in the preparation of "**Lecture Notes on Z-Transform**" by Refaat El-Attar Published in 2005, Lulu Press Inc., USA