

CURRICULUM VITAE

Name : Monette H. Khadr
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Education

PhD Computer Engineering Expected (2022)

University at Albany, State University of New York (SUNY)

M.Sc. Electronics and Communication Engineering 2016

Arab Academy for Science, Technology, and Maritime Transport (AASTMT), Egypt

Cumulative GPA: 3.88/4.0, Excellent

Thesis Title: "Uniform Light Distribution of a LiFi Model with Improved Bandwidth and Bit Error Rate."

Supervisors: Prof. Dr. Moustafa H. Aly, Dr. Heba A. Fayed, and Dr. Ahmed Abd El Aziz

B.Sc. Electronics and Communication Engineering 2007

Arab Academy for Science, Technology, and Maritime Transport (AASTMT), Egypt

Cumulative GPA: 4.0/4.0, Valedictorian

Graduation Project: "Multi-Access Target Identification."

Work Experience

Arab Academy for Science, Technology, and Maritime Transport (AASTMT), Egypt

ELECTRONICS & COMMUNICATION ENGINEERING DEPARTMENT:

2012-2017

Graduate Teaching Assistant

- Provide challenging course work, innovative projects, and stimulating exercises while utilizing active learning techniques, and a hands-on approach.
- Promote utilization of the latest technology and cultivate greater general educative skills such as communications along with quantitative and critical thinking.
- Participate in several committees and work collaboratively on department assessments.
- Teaching multiple undergraduate courses such as:

- Antennas Engineering (Linear array theory: uniform and non-uniform linear arrays, Planar arrays, Circular arrays, Aperture on conducting & non conducting planes, Horn antennas, Parabolic reflectors, Loop antennas, Travelling wave antennas)
- Biomedical Electronics (Introducing basic concepts in biomedical engineering and applications of electronics in patient care medical equipments)
- Electronics (Giving discussion session in topics related to p-n junction diode and its applications, problems in BJT and FET analysis in DC and AC).
- Digital Signal Processing (Electronic data converters, DFT, FFT, Z-transform, Filter design)

Lab Administrator

- Electronic Devices II (Designing circuits based on PN junctions like clipping, clamping, half wave rectifier, full wave, voltage doublers, and circuits in common emitter, collector and base mode).
- Electronic Amplifiers (Frequency response of common emitter, base, and collector, design and construction of class A, B, and AB power amplifier).
- Microelectronic Circuit (Design and construction of current mirrors, design simulation and construction of Differential Amplifiers and Op-Amp applications).

Research Assistant

- Performing research as a member of the Photonic Research Lab (PRL) Group in the field of Optical Communications under the supervision of Prof. Dr. Moustafa H. Aly, Dr. Heba A. Fayed, and Dr. Ahmed Abd El Aziz. Within this time, I had the chance of conducting some fundamental theoretical research under the guidelines of the key industrial players in the field. This work was recently concluded with some key results and was published in a leading IEEE conference proceeding (CSNDSP'16), Prague, July 2016, and a journal paper awaiting acceptance.

BASIC & APPLIED SCIENCE DEPARTMENT:

2007-2009 & 2011-2012

Graduate Teaching Assistant

- Prepared and conducted undergraduate courses Aiding and helping undergraduate students during tutorial sessions.
- Teaching multiple courses including
 - Mathematics I (Differentiation, L'Hospital rule, Partial Differentiation, Maclaurin's expansions, Curve sketching and Conic sections)
 - Mathematics II (Integration techniques, Matrix Algebra, Solutions of linear equations, Eigen values and eigenvectors)
 - Mathematics III (Differential Equations, Laplace Transform, Inverse Laplace Transform, Fourier Series)
 - Probability and Statistics (Statistical analysis for data: mean, variance, skewness and kurtosis, Conditional probability, Independent and dependent events, Total probability theory, Bayes Theorem)

Arab Petroleum Pipelines Co. (SUMED), Alexandria

Summer 2006

As a trainee in the communications and instrumentations department, I was introduced to the machinery, pipelines, and tanks used in the company.

Telecom Egypt, Miami Branch, Alexandria

Summer 2005

I had the opportunity, as an undergraduate trainee in the transmission department, to explore the basics of the telecom landscape, from standards and protocols to premise, access, signaling, and transport and convergence technologies.

Research Experience

The main topic of my previous research was ‘Bandwidth and Bit error Rate Improvement for an Optical Communication Link’. The objective was to derive the fundamental limitations of an indoor optical communication system and compare the performances of previous researches. Firstly, I developed an efficient VLC system that can be employed in an indoor environment. A framework is developed to analytically approximate the power received, illumination, SNR, and BER of a number of proposed LED distribution models at different data rates, and comparing them to reach a model which enables reliable data transmission at the highest data rate possible. Secondly, a novel pre-equalization circuit that enhance the 3 dB modulation bandwidth of an LED from a few MHz up to 325 MHz, thus making even higher data rates attainable. The results of this research can be found on IEEE explore, cited as:

M.H. Khadr, H.A. Fayed, A. Abd El Aziz, and M.H. Aly, “Bandwidth extension of an enhanced SNR with a higher light uniformity of a phosphorescent white LED based visible light communication system,” Proceedings of Communication Systems Networks and Digital Signals Processing (CSNDSP’16), Prague, 21 July, 2016.

Computer Skills

- MatLab and Simulink
- MultiSim
- Microsoft Office
- C. Language
- NEC – Antenna Design
- Java
- PSpice

Languages

- Arabic: Native Language
- English: Fluent (speaking, writing, reading)
- French: Basic (speaking, writing, reading)