

Maram Sakr

CARIS Lab Department of Mechanical Engineering, UBC 6250 Applied Science Lane Vancouver, BC V6T 1Z4 Canada

Cell: +1 604 716 8494

Email: maram.sakr@ubc.ca

EDUCATION

University of British Columbia
Ph.D., in Mechanical Engineering
Cumulative GPA: 4.33

Vancouver, Canada
Fall 2017 – Present

Simon Fraser University
M.Sc., in Engineering Science
Cumulative GPA: 4.08

Burnaby, Canada
Fall 2016 – Fall 2017

Mansoura University
B.Sc., in Computers and Systems Engineering
Distinction with honor degree, Total grade: (88.48% - ranked 3rd)
Graduation Project: One-Eyed Self-Learning Arm Robot.
Graduation Project Grade: Distinction.

Mansoura, Egypt
2007 - 2012

RESEARCH INTERESTS

My research focuses on Robotics, Machine learning, and Automation.

WORK/RESEARCH EXPERIENCE

University of British Columbia
Mechanical Engineering
Research Assistant

Vancouver, Canada
Fall 2017 - Present

Working with Prof. Elizabeth Croft and Prof. Machiel Van der Loos at the Collaborative Advanced Robotics and Intelligent Systems (CARIS) lab. Conducting research in the area of human-robot interaction and learning from demonstration.

Simon Fraser University
School of Engineering Science
Research Assistant

Burnaby, Canada
Fall 2015 – Fall 2017

Working with Prof. Carlo Menon at the MENRVA Lab. Conducting research in the area of human-robot interaction, bio-signals processing and machine learning.

Simon Fraser University
School of Computing Science
Research Assistant

Burnaby, Canada
Spring 2015 - Fall 2015

Working with Prof. Mohamed Hefeeda at the Network Systems Lab. Developing the work that is published in the paper “Industrial Automation as a Cloud Service. “using LabVIEW and C#.

EduTKs (Educational Toys and Kits)
Co-founder

Mansoura, Egypt
2013 - 2015

Startup that is specialized in designing and manufacturing creative educational toys and electronic kits for students.

Mansoura University
Computers and Systems Engineering Dept.
Teaching Assistant

Mansoura, Egypt
2012 - 2015

I was a teaching assistant for undergraduate courses like Machine Learning, Control Engineering, and Measurement Devices & Sensors. In addition, I supervised many graduation projects teams.

American University in Cairo
INJAZ competition

Cairo, Egypt
Winter 2012

My graduation project won a seed fund of 60,000 EGP from ExxonMobil

and 6 months incubation, which included training with Lean Six Sigma course that involved sessions about:

- Time management
- Problem solving
- Great Leadership
- Project management

Petrobel Company

Intern

Cairo, Egypt
Summer 2011

The training involved dealing with:

- Oracle 10 with its forms and needed reports
- Centrals and switches in Communication networks in company
- Topology of networks.
- Redlines and radio signals and VSAT and wireless connections.
- Remote control for huge machines.

IT share Company

Intern

Mansoura, Egypt
Winter 2010

Design web sites using Photoshop, illustrator and Dreamweaver.
Developing using PHP.

Faculty of Engineering

Trainee

Mansoura, Egypt
Summer 2010

The training involved the following:

- Computer networks.
- Databases.
- Microcontrollers.
- PLC.

PUBLICATIONS

Journal Articles:

1. **Maram Sakr**, Xianta Jiang, and Carlo Menon. “*Estimation of User-applied Isometric Force/Torque using Upper Extremity Force Myography*”, submitted to Journal of Bionic Engineering.
2. Alaa Eldin Abdelaal, **Maram Sakr**, Apeksha Avinash, Shahed Khan Mohammed, Armaan Kaur Bajwa, Mohakta Sahni, Soheil Hor, Sidney Fels, Septimiu E. Salcudean. “*Play Me Back: A Unified Training Platform for Robotic and Laparoscopic Surgery*” submitted to IEEE Robotics and Automation Letters (RA-L).

Peer-reviewed Conferences:

1. **Maram Sakr**, Waleed Uddin, and H.F. Machiel Van der Loos. “*Orthographic Vision-based Interface with Various Control Modalities for Robot Arm Teleoperation*” submitted to International Conference on Robotics and Automation (ICRA).
2. Wesley Patrick Chan, **Maram Sakr**, Camilo Alfonso Perez Quintero, Elizabeth Croft, and H.F. Machiel Van der Loos “*A Hands-free, Tether-free Multimodal Augmented Reality System for Robot Trajectory Programming and Execution: A Comparison of Control Interfaces*” submitted to International Conference on Robotics and Automation (ICRA).
3. **Maram Sakr**, and Carlo Menon. “*Exploratory Evaluation of the Force Myography (FMG) Signals Usage for Admittance Control of a Linear Actuator*”, IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics, 2018.
4. Mona L. Delva, **Maram Sakr**, Ra’na Chengani, Mahta Khoshnam Tehrani and Carlo Menon. “*Investigation into the Potential to Create a Force Myography-based Smart-home Controller for Aging Populations*”, IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics, 2018.
5. Wesley P. Chan, Camilo Perez Quintero, Matthew K. X. J. Pan, **Maram Sakr**, H.F. Machiel Van der Loos, and Elizabeth Croft. “*A Multimodal System using Augmented Reality, Gestures, and Tactile Feedback for Robot Trajectory Programming and Execution*”, International Conference on Robotics and Automation (ICRA) 2018 Workshop on Robotics in Virtual Reality.
6. **Maram Sakr** and Carlo Menon. “*Study on the Force Myography Sensors Placement for Robust Hand Force Estimation*”, IEEE International Conference on Systems, Man, and Cybernetics, Banff, Canada. October 2017.
7. Alaa Eldin Abdelaal, **Maram Sakr**, and Richard Vaughan. “*LOST Highway: a Multiple-Lane Ant-Trail Algorithm to Reduce Congestion in Large-Population Multi-Robot Systems*”. In Proc. of the 14th Conference on Computer and Robot Vision (CRV), Edmonton, Alberta, May 2017.
8. **Maram Sakr** and Carlo Menon. “*On the estimation of isometric wrist/forearm torque about three axes using Force Myography*”, IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechanics, Singapore. June 2016.

9. **Maram Sakr** and Carlo Menon. “*Regressing force-myographic signals collected by an armband to estimate torque exerted by the wrist: a preliminary investigation*”, IEEE Canadian Conference on Electrical and Computer Engineering, Vancouver, Canada. May 2016.
10. Ra’na Chengani, Mona L. Delva, **Maram Sakr** and Carlo Menon. “*Pilot study on strategies in sensor placement for robust hand/wrist gesture classification based on movement related changes in forearm volume*”, IEEE-NIH Special Topics Conference on Healthcare Innovations and Point-of-Care Technologies, Cancun, Mexico. 2016.

THESES

- Maram Sakr, *Feasibility of Using Force Myography for Estimating Hand Force and Wrist Torque*. M.Sc. thesis. School of Engineering Science, Faculty of Applied Sciences, Simon Fraser University, Burnaby, BC, Canada. October 2017.
- Maram Sakr *et. al.* *One-Eyed Self-Learning Arm Robot*. B.Sc. Thesis, Computers and systems Engineering Department, Faculty of Engineering, Mansoura University, Mansoura, Egypt. June 2012.

ACADEMIC HONORS & AWARDS

- The Faculty of Applied Science Graduate Award at the University of British Columbia. 2018 - 2019
- The International Tuition Award at the University of British Columbia (two times). 2017 – 2019
- The Provost Doctoral Entrance Award for Women at the University of Waterloo (declined). 2017 - 2018
- The Graduate Fellowship at Simon Fraser University. Summer 2017
- My graduation project was one of the winning projects in the 6th Annual Egypt's Young Entrepreneurs Competition of [Injaz Egypt](#) and we received a seed fund of 60,000 Egyptian pounds from ExxonMobil Egypt. 2012
- My graduation project won the Young Innovator award from Nahdet El Mahrousa Association. 2012
- Distinction Award from the Faculty of Engineering, Mansoura University, Egypt, five times. 2007 - 2012

SELECTED COURSEWORK

- CSE 3315 Artificial Intelligent
- CSE 3413 Machine Learning
- CMPT 882 Special Topics in Artificial Intelligence: Distributed Robot and Sensor System.
- CMPT 882 Special Topics in Computing Science: Deep Learning.
- EECE 592 Architecture of Learning Systems.
- EECE 518 Human Interface Technologies.
- MECH 563 Robotics: Kinematics, Dynamics and Control.

COMPUTER SKILLS

Computer languages

C#.NET, C, Java, Microsoft Visual Basic, Python and PHP.

Environments

Microsoft Windows and Linux

Database Management Systems

Oracle, Microsoft SQL Server and MySQL.

Hardware description languages

Verilog

Other

LabVIEW, MATLAB and Object Oriented Design using UML.

EXTRACURRICULAR ACTIVITIES

- Reviewer at the IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronic. 2018
- Member at the counselling team at Egypt Scholars Inc. where we provide mentorship to current and prospective students regarding studying abroad, hunting scholarships and admission requirements. June 2016 – Present
- Volunteer at the organization of 2017 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2017). September 2017
- Volunteer at the organization of ROSCon 2017 (the main conference for the developers of Robot Operating System (ROS)). September 2017
- Member of Quality and Reliability unit that aims to improve the education quality in my faculty. 2013 – 2015
- Member of the scientific community in my department. 2012 – 2015
- Volunteer at Resala Association for charity. 2011 – 2015

REFERENCES

Upon request