Maram Sakr

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

Monash University — Melbourne, Australia
Joint Ph.D., in Electrical and Computer Systems Engineering — Fall 2019 – Present
Advisors: Prof. Elizabeth Croft and Prof. Dana Kulić

University of British Columbia — Vancouver, Canada
Ph.D., in Mechanical Engineering — Fall 2017 – Present
Advisor: Prof. Machiel Van der Loos
Cumulative GPA: 4.33

Simon Fraser University — Burnaby, Canada
M.Sc., in Engineering Science — Fall 2016 – Fall 2017
Thesis: Feasibility of Using Force Myography for Estimating Hand Force and Wrist Torque
Advisor: Prof. Carlo Menon
Cumulative GPA: 4.08

Mansoura University — Mansoura, Egypt
B.Sc., in Computers and Systems Engineering — 2007 - 2012
Distinction with honor degree, Total grade: (88.48% - ranked 3rd)
Thesis/Graduation Project: One-Eyed Self-Learning Arm Robot.

WORK/RESEARCH EXPERIENCE

University of British Columbia — Vancouver, Canada
Mechanical Engineering — Fall 2017 - Present
Research Assistant
Conducting research in the area of Human-Robot Interaction and Robot Learning from Demonstration.

Simon Fraser University — Burnaby, Canada
School of Engineering Science — Fall 2015 – Fall 2017
Research Assistant
Conducting research in the area of Human-Robot Interaction, Bio-Signals Processing and Machine Learning.

Simon Fraser University — Burnaby, Canada
School of Computing Science — Spring 2015 - Fall 2015
Research Assistant
Working with Prof. Mohamed Hefeeda at the Network Systems Lab. Conducting research in the area of Automation and Control systems, and Cloud Computing.

EduTKs (Educational Toys and Kits) — Mansoura, Egypt
Co-founder — 2013 - 2015
Startup that is specialized in designing and manufacturing creative educational toys and electronic kits for students.

Mansoura University — Mansoura, Egypt
Computers and Systems Engineering Dept. — 2012 - 2015
Teaching Assistant
I was a teaching assistant for undergraduate courses like Machine Learning, Control Engineering, and Measurement Devices & Sensors.

SELECTED PUBLICATIONS (FULL LIST Google Scholar)
JOURNAL ARTICLES:

1. Jonathan Feng-Shun Lin, Pamela Carreno-Medrano, Mahsa Parsapour, **Maram Sakr**, and Dana Kulić. *"Objective learning from human demonstrations."* Annual Reviews in Control, 2021.

2. Wesley P. Chan, Geoffrey Hanks, **Maram Sakr**, Tiger Zuo, H.F. Machiel Van der Loos, and Elizabeth Croft. "*Design and Evaluation of a Wearable Augmented Reality Interface for Human Robot Teams Collaborating in Physically Shared Manufacturing Tasks*", submitted to the ACM Transactions on Human-Robot Interaction, 2020.
3. **Maram Sakr**, Xianta Jiang, and Carlo Menon. "*Estimation of User-applied Isometric Force/Torque using Upper Extremity Force Myography*", Frontiers in Robotics and AI, 6(120), 2019.
4. 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*", IEEE Robotics and Automation Letters, 4(2), pp.554-561, 2018. [Also presented at the IEEE International Conference on Robotics and Automation (ICRA), Montreal, QC, Canada, May 2019].

PEER-REVIEWED CONFERENCES:
1. **Maram Sakr**, Martin Freeman, H.F. Machiel Van der Loos, Elizabeth Croft. "*Training Human Teacher to Improve Robot Learning from Demonstration: A Pilot Study on Kinesthetic Teaching*", IEEE International Conference on Robot and Human Interactive Communication (RO-MAN), 2020.
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*", IEEE International Conference on Robot and Human Interactive Communication, (RO-MAN), 2020.
3. Wesley P. Chan, Geoffrey Hanks, **Maram Sakr**, Tiger Zuo, H.F. Machiel Van der Loos, and Elizabeth Croft. "*An Augmented Reality Human-Robot Physical Collaboration Interface Design for Shared, Large-Scale, Labour-Intensive Manufacturing Tasks*" IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), 2020.
4. **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 Biomechatronics (BioRob), 2018.
5. **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 Biomechatronics (BioRob), 2017.
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 (SMC), 2017.

PEER-REVIEWED WORKSHOPS:
1. **Maram Sakr**, HF Machiel Van der Loos, Dana Kulić, and Elizabeth Croft. *"What Makes a Good Demonstration for Robot Learning Generalization?"* In In Proc. of the ACM/IEEE International Conference on Human-Robot Interaction (HRI), HRI Pioneers Workshop, pp. 607-609. 2021
2. Wesley P Chan, Camilo Perez Quintero, Matthew KXJ Pan, **Maram Sakr**, HF Machiel Van der Loos, Elizabeth Croft. "A Multimodal System using Augmented Reality, Gestures, and Tactile Feedback for Robot Trajectory Programming and Execution." In the IEEE International Conference on Robotics and Automation (ICRA) 2018 Workshop on Robotics in Virtual Reality.
3. Waleed Uddin, **Maram Sakr**, Camilo Perez Quintero, HF Machiel Van der Loos. "Orthographic Vision-based Interface for Robot Arm Teleoperation." In the IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2018 Workshop on Towards Intelligent Social Robots: From Naive Robots to Robot Sapiens

SERVICE
- Reviewer at:
  - The Computers in Industry journal (2021)
  - The IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2020).
  - The IEEE International Conference on Human-Robot Interaction (HRI 2020)
  - The IEEE Haptics Symposium (2020)
  - The IEEE RAS/EMBS International Conference on Biomedical Robotics and Biomechatronic (BioRob 2018)
- Volunteer at the organization of IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2017).
- Volunteer at the organization of ROSCon 2017 (the main conference for the developers of Robot Operating System (ROS)).

ACADEMIC HONORS & AWARDS
- Alexander Graham Bell Canada Graduate Scholarship from NSERC ($35,000 per year for three years), ranked first in Canada in the Computing Sciences committee.   2020-2022
- British Columbia Government Scholarship (BCGS) ($15,000).   2020
- Monash Research Scholarship ($25,295).   2019 – 2023
- Monash International Postgraduate Research Scholarship ($42,340).   2019 - 2023
- 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 ($5,000) (declined).   2017 - 2018
- The Graduate Fellowship at Simon Fraser University ($6,500).   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

and a prize of 6000 Egyptian Pounds, which is given to the best bachelor theses in Egypt.   2012
- Distinction Award from the Faculty of Engineering, Mansoura University, Egypt, five times.   2007 - 2012

ADDITIONAL TRAINING
- The Robotic Vision Summer School (RVSS) organized by The Australian Centre for Robotic Vision
- The 5th Deep Learning Winter School organized by the IVADO and the University of Montreal. This winter school was a five-day hands-on, and intensive course in Deep Learning.   2019
- The International Teaching Assistants Program at Simon Fraser University. This program was a 10-week intensive seminars and workshops that combines an emphasis on learning evidence and theory-based approaches to teaching and learning.   2015

VOLUNTEERING AND OUTREACH
- 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
- 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 at Mansoura University.   2012 – 2015
- Volunteer at Resala Association for charity and participated in many events to help the poor in my city and the surrounding small towns.   2011 – 2015