Abdelrahman Hosny

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Summary

I'm researching the Learn to Optimize (L2O) paradigm finding ways that historical data can help optimizers produce better results. Within this paradigm, I investigate GNNs and RL.

Interests

L2O, Reinforcement Learning, GNN

Education

2018-Present	**PhD** – Computer Science, Brown University, Providence, RI.	
	Interests: Learning to Optimize (L2O); Graph Learning; Reinforcement Learning; EDA.	
2019-2020	**Visiting Graduate Student** – Computer Science and Engineering, UCSD, San Diego, CA.	
2015-2016	**Master's** – Computer Science and Engineering, University of Connecticut, Storrs, CT.	GPA: A
	Thesis: Integrative analysis of heterogeneous genomics data for triple-negative breast cancer and high grade serous ovarian cancer. Online access: http://masters.abdelrahmanhosny.me	
2016-2016	**Graduate Certificate in College Instruction**, a 9-credit program for graduate-level teaching, UConn	
	Teaching Portfolio: http://teaching.abdelrahmanhosny.me	
2009-2013	**Bachelor** – Computer Science, Assiut University, Egypt. Rank: 1st	GPA: 92.51%
2008-2009	*High School* – Ranked first in Egypt, Math Section.	Grade: 99.6%

Publications Highlight

Full profile: http://scholar.abdelrahmanhosny.me

[SEC 2021] **Hosny A**., Neseem M., Reda S – BitTrain: Sparse Bitmap Compression for Memory-Efficient Training on the Edge

[DATE 2021, TCAD 2021] **Hosny A**., Reda S – Characterizing and Optimizing EDA Flows for the Cloud.

[*ASP-DAC* 2020] **Hosny A.**, Hashemi S., Shalan M., Reda S – DRiLLS: Deep Reinforcement Learning for Logic Synthesis.

[*DAC* 2019] Toward an Open-Source Digital Flow: First Learnings from the OpenROAD Project.

[*ACM-BCB* 2017] **Hosny A.**, Zare F., Nabavi S. VarSimLab – A Docker-based Pipeline to Automatically Synthesize Short Reads with Genomic Aberrations.

[*Bioinformatics* 2016] **Hosny A.**, Vera-Licona P., Laubenbacher R., Favre T – AlgoRun, a Docker-based packaging system for platform-agnostic implemented algorithms.

Experience

June 2019 – Sep. 2019	**Research Intern**, Microsoft Research, Redmond, WA, USA
June 2017 – Aug. 2018	**Research & Development Engineer**, xWARE Integrated Solutions, Assiut, Egypt.
Jun. 2017 – Aug. 2018	**Teaching Assistant**, Computer Science, Assiut University, Egypt
	Courses Taught: Computer Architecture, Programming with Assembly for x86 architectures.
Jan. 2016-May. 2017	**Research Assistant**, Center for Quantitative Medicine, UConn Health, CT, USA
	Projects: AlgoPiper, TURING
Jan. 2015-Dec. 2016	**Teaching Assistant**, Computer Science and Engineering, University of Connecticut, CT, USA
	Courses: Statistical Analysis of Computer Systems, Algorithms & Complexity, Cloud Computing
Summer 2016	**Research Intern**, Sheida Nabavi Lab, University of Connecticut, CT, USA
Jan. 2015-Dec. 2015	**Research Assistant**, Center for Hardware Assurance, Security and Engineering, Electrical and Computer Engineering, University of Connecticut, CT, USA
	Project: Anomalous behavior detection through real-time analysis of log files
Summer 2015	**Research Intern**, Center for Quantitative Medicine, UConn Health, CT, USA
Oct. 2013-Dec. 2014	**Teaching Assistant**, Computer Science, Assiut University, Egypt
	Courses: Introduction to Object Oriented Programming using Java, Compilers Theory
Summer 2012	**Software Engineering Intern**, ITWorx, Cairo, Egypt
	Project: School Management System using Microsoft SharePoint technology

Honors and Awards

2019	Richard Newton Young Student Fellowship, Design Automation Conference (DAC'19), Las Vegas, NV, USA
2015	UConn Graduate Student Intern of the Year Honorable Mention, University of Connecticut, USA
2013	Top 10 Debaters Medal and Award, 2nd International Universities Arabic Debating Championship, Al Doha, Qatar
2010	One of Top 10 Math Competitors, AUC Math Competition, Cairo, Egypt.
2009	Coca-Cola Education Award, Assiut Governorate shield, Assiut Municipal Council shield
	Teachers Association in Assiut shield

Community

2021	External Reviewer, IEEE Transactions on Computer Aided Design
2020	External Reviewer, IEEE Design and Test
2019 – 2020	External Reviewer, AMIA 2019 Annual Symposium
2010 – Present	A student member in IEEE and ACM

Featured Projects

Full Portfolio: https://github.com/abdelrahmanhosny?tab=projects

2019	DRiLLS – Brown University.
	A Deep Reinforcement Learning Framework for Logic Synthesis [link: https://github.com/scale-lab/DRiLLS]
2018	OpenROAD Flow – Brown University funded by DARPA
	A cloud-based application to run a fully automated hardware design flow [link: https://theopenroadproject.org/]
2017	MeSHgram – NCBI Hackathon, NLM, NIH, Washington DC [link: https://github.com/NCBI-Hackathons]
	A web-based tool to visually browse co-occurrence of MeSH terms in PubMed.
2016	*Integrative Analysis of heterogeneous genomics data for TNBC,* Master's Thesis
	Identifying candidate biomarkers for drug resistance in heterogeneous breast cancer data.
2016	*CNV-Sim*, main contributor [link: https://nabavilab.github.io/CNV-Sim]
	Simulating copy number variations in whole genome and targeted sequencing.
2016	*TURING*, main contributor [link: http://www.discretedynamics.org/]
	A crow-sourced platform for algorithms focused on time- and state-discrete dynamical systems.
2016	*AlgoPiper*, main contributor [link: http://algopiper.org/]
	A visual tool to create pipelines based on AlgoRun packaging system.
2016	*Deep learning models on Saccharomyces Cerevisiae*, main contributor
	[link: http://abdelrahmanhosny.github.io/DL-Cerevesiae/]
	Confirming DNA origins of replication in Cerevisiae genome using deep learning models.
2015	*AlgoRun*, main contributor [link: http://algorun.org/]
	A Docker-based packaging system for platform-agnostic implemented algorithms.

Conferences and Certification

January 2020	*Presenter*, ASP-DAC'20, Beijing, China
January 2020	*Tutorial Speaker*, VLSID'20, Bangalore, India
August 2017	*Presenter,* ACM BCB'17, Boston, MA.
April 2016	*Speaker* at Docker Boston Meetup. Talk link: http://bit.ly/algorun-talk
March 2016	*Mentor* at Docker Birthday #3, Boston, MA
January 2013	International Software Testing Qualifications Board (ISTQB) – Foundation

Volunteering

Feb. 2016 - May 2017	*Webmaster* at IEEE Connecticut Section
	Activities: maintain and update all website content of IEEE CT Section.
November 2013	*Team Coach* at ACM Arab Collegiate Programming Contest (ACPC), Egypt
	Activities: mentored a team of programmers to solve programming challenges

Aug. 2012 - May 2013   *Microsoft YouthSpark Leader*, Microsoft Citizenship, Egypt

Activities: planned social projects that promote entrepreneurship

Jan. 2011 - May 2013   *Microsoft Student Partner* at Microsoft Egypt

Activities: founded and lead Microsoft tech-club at Assiut University

delivered technical sessions evangelizing Microsoft technologies

contributed to Microsoft Windows 8 Launch in Egypt

competed in Microsoft Imagine Cup 2012

Aug. 2011 - May 2012   *President*, Alashanek Ya Balady for Sustainable Development, Assiut Franchise

Activities: started R&D processes to support poor people in the city

formulated youth development and micro loans programs

Aug. 2010 – May 2011   *Scientific Committee Head*, Student Union, Faculty of Computers & Information

Activities: contributed to a country-wide conference for CS students.

delivered technical sessions about web development