

AHMED HEFNY

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CAREER OBJECTIVE

Building artificial intelligence solutions with transformative real-world impact, and tackling the technical challenges on the fundamental and practical levels along the way.

EDUCATION

Carnegie Mellon University *May 2018*

PhD in Machine Learning

Thesis: Efficient Methods for Prediction and Control in Partially Observable Environments

Carnegie Mellon University *May 2015*

Master of Science in Machine Learning

Project: A New View of Predictive State Methods for Dynamical System Learning.

Cairo University *May 2010*

Master of Science in Computer Engineering

Distinction 95.3% (3.83 GPA)

Ranking 1st

Thesis: Error Rate Estimation for Small Sample Sized Problems.

Cairo University *May 2007*

Bachelor of Science in Computer Engineering

Distinction with honors 95.5% (3.96 GPA)

Ranking 1st out of 105

Graduation Project: Machine Learning for Capture the Flag Games (AIIDE 2008).

WORK EXPERIENCE

Waymo July 2018 - to date

Software Engineer

Mountain View, CA

- Worked on behavior prediction. My work spans design, implementation, and tuning of prediction models; design, implementation and ownership of different on-board components; design and analysis of prediction evaluation metrics; analysis of behavior issues; mentoring junior team members and cross-team collaboration on different problem clusters.

Google[X] May 2015 - August 2015

Software Engineering Intern

Mountain View, CA

- Worked on behavior prediction for the self-driving car.

Google May 2014 - August 2014

Software Engineering Intern

Mountain View, CA

- Developed statistical models, inference algorithms and utilities for user modeling.

Bing/Microsoft Research Summer 2013

Research Intern

Bellevue, WA

- Worked on a joint Bing/MSR project for analyzing and enhancing Bing notifications.

Bing/Microsoft Research Summer 2012

Research Intern

Bellevue, WA

- Worked with Bing’s Document Understanding Team on extracting facts from documents.

Microsoft Advanced Technology Lab in Cairo (ATLC) 2010-2011
Research Assistant Cairo, Egypt

- Worked on Arabic named entity recognition and multilingual information retrieval.

IBM Cairo Technology Development Center (CTDC) 2007-2010
R&D Engineer Cairo, Egypt

- Worked on statistical parsing, Arabic document summarization and machine translation.

University of Wuerzburg Summer 2006
Intern Wuerzburg, Germany

- Worked with a research group in the field of Computer-aided Neuro-rehabilitation. Developed a virtual reality based hand motion training and analysis system using Java. The work was presented later at the 82nd Annual Congress of the German Society of Neurology.

HPROG 2005
Part-time Developer Cairo, Egypt

- Developed an O/R mapping tool that maps SQL Server 2000 tables to Visual Basic.NET classes.

SELECTED PUBLICATIONS

- Balakrishnan Varadarajan, Ahmed Hefny, Avikalp Srivastava, Khaled S. Refaat, Nigamaa Nayakanti, Andre Cornman, Kan Chen, Bertrand Douillard, Chi Pang Lam, Dragomir Anguelov, Benjamin Sapp, “MultiPath++: Efficient Information Fusion and Trajectory Aggregation for Behavior Prediction”, ICRA 2022 (to appear).
- Ahmed Hefny, Carlton Downey and Geoffrey Gordon, “An Efficient, Expressive and Local Minima-free Method for Learning Controlled Dynamical Systems”, AAAI 2018.
- Carlton Downey, Ahmed Hefny, Boyue Li, Byron Boots and Geoffrey Gordon, “ Predictive State Recurrent Neural Networks”, NIPS 2017.
- Ahmed Hefny, Zita Marinho, Carlton Downey, Wen Sun, Siddhartha Srinivasa and Geoffrey Gordon, “Predictive State Models for Prediction and Control in Partially Observable Environments”. CoRL 2017.
- Ahmed Hefny, Carlton Downey and Geoffrey Gordon, “Supervised Learning for Dynamical System Learning”, NIPS 2015.
- Sashank J. Reddi, Ahmed Hefny, Suvrit Sra, Barnabs Pczos and Alexander Smola, “On Variance Reduction in Stochastic Gradient Descent and its Asynchronous Variants”, NIPS 2015.
- Ahmed Hefny, Sashank Reddi and Suvrit Sra, “Coordinate Descent Algorithms With Coupling Constraints: Lessons Learned”, NIPS 2014 Workshop on Software Engineering for Machine Learning.
- Ahmed Hefny, Kareem Darwish and Ali Alkahky, “Is a Query Worth Translating: Ask the Users!”, ECIR 2011.
- Ahmed Hefny, Hany Hassan and Mohamed Bahgat, “Incremental Combinatory Categorical Grammar and its Derivations”, CICLING 2011.
- Ahmed S. Hefny, Ayat A. Hatem, Mahmoud M. Shalaby and Amir F. Atiya, “Cerberus: Applying Supervised and Reinforcement Learning Techniques to Capture the Flag Games”, AIIDE 2008.

PROFESSIONAL ACTIVITIES

Served as a program committee member for NeurIPS, ICML, ICLR and AISTATS.

2015 Participated in the first Neurohackathon hosted by CMU's BrainHub. Our team won the first place.

SELECTED COURSES

- Fall 2016** Topics in Deep Learning course at CMU.
Course Project: Comparing LSTM recurrent networks to feed forward networks with predictive states.
- Summer 2016** Control of Mobile Robots course at GeorgiaTech (through Coursera)
- Spring 2012** Graduate Algorithms course at CMU.
Statistical Machine Learning course at CMU.
- Fall 2011** Machine Learning course at CMU.
Course Project: Parametric and non-parametric topic models with time.
- April 2009** Intel Multicore Programming Course (Training for Trainers).

TECHNICAL SKILLS

- C/C++, Java, Python (inc. NumPy, Tensorflow and Jupyter), SQL
- Unix Command-line Tools, Git, Mercurial, Latex

LANGUAGES

Arabic: Native Speaker.

English: Excellent written/spoken.

REFERENCES

References to be furnished upon request.