

HAZEM NOMER

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Currently I am Machine Learning Researcher at Siemens EDA working with Calibre LFD ML team on designing and evaluating machine learning models for hot-spot detection problem. Previously, I was a research assistant at Wireless Intelligent Networks Center (WINC), Nile University and enrolled in the PhD program in Computer Science at ITCS school at Nile University.

I have a MSc. in computer science from Faculty of Science, Alexandria University and BSc. from the same university in Computer Science and Statistics. My interests span deep learning, neural program induction/synthesis, and optimization algorithms. I also have interests in Computer Vision and Natural Language Processing.

INFORMATION TECHNOLOGY AND COMPUTER SCIENCE SCHOOL- NILE UNIVERSITY

PhD. In Computer Science (2021-)

FACULTY OF SCIENCE –ALEXANDRIA UNIVERSITY

MSc. In Computer Science (2016-2019)

- Thesis: **Solving combinatorial optimization using neural networks**
Learning optimization algorithms using Recurrent Neural Networks and Memory Networks.
- CGPA: **4 (Excellent)**
- **Bachelor of Science (Computer Science and Statistics) (2012-2015)**
- CGPA: **3.03 (Very Good)**
- Graduation Project: **Adaptive user interfaces (Java and Android)** Grade: **A**
Used Recurrent Neural Networks (RNNs) to adapt mobile UIs to user needs.

EXPERIENCE

Siemens EDA (Siemens Digital Software Industries)

Machine Learning Researcher & Engineer (August 2021-)

R&D and Software Engineer for Designing and Evaluating models for hot-spot detection problem.

Faculty of Computer Science and Engineering – AL- Alamein International University

Teacher Assistant Introduction to Object Oriented Programming Course (August 2021 – September 2021)

Wireless Intelligent Networks Center (WINC) – School of Engineering and Applied Sciences, Nile

University

Research Assistant at WINC under supervision of Dr. Ali Wagdy Mohamed (September 2020 – September 2021)

Project: Improving evolutionary algorithm using Deep Reinforcement Learning.

FACULTY OF ENGINEERING – PHAROS UNIVERSITY

Lecturer Assistant at Basic Engineering Department & Computer Engineering Department (September 2018 – September 2020)

Courses: Engineering Mathematics (1), Engineering Mathematics (2), Engineering Mathematics (4), Structured Programming, Numerical Analysis with Matlab, Linear Algebra

FACULTY OF COMPUTER SCIENCE AND INFORMATICS – ALEXANDRIA UNIVERSITY

Lecturer Assistant (February 2020 – June 2020)

FACULTY OF ENGINEERING – ALEXANDRIA UNIVERSITY

Teacher Assistant at SPP Programs Computer Science & Communication Department (February 2017- June 2018)

Courses: Systems Programming, Operating Systems, Artificial Intelligence, Introduction to Software Engineering, Introduction to Programming, Introduction to Computer Architecture

FACULTY OF EDUCATION – ALEXANDRIA UNIVERSITY

Teacher Assistant at the Mathematics Department (November 2016- June 2018)

- Introduction to Programming in C, Calculus I & II, Linear Algebra, Basic Mathematics, Probability and Statistics, Probability II & Statistical Methods.

ACADEMIC EXPERIENCE

Interests: machine learning, memory networks, recurrent neural network, natural language processing neural program synthesis, and optimization.

1. A Review titled "**Recursive Neural Networks Review**", June 2016.
2. Long Term Memory Network for Combinatorial optimization Problems, ICLR, Nov 2017
3. **H. A. A. Nomer**, K. A. Alnowibet, A. Elsayed and A. W. Mohamed, "Neural Knapsack: A Neural Network Based Solver for the Knapsack Problem," in **IEEE Access**, vol. 8, pp. 224200-224210, 2020, doi: 10.1109/ACCESS.2020.3044005.
4. **H. A. A. Nomer**, Nashwa Abdelbaki, "Memory Network for the design of autonomous Network Intrusion Detection System", in **IEEE Access** (under review), 2021
5. H. A. A. Nomer, A. W. Mohamed, A. H. Yousef, "GSK-RL: Adaptive Gaining-sharing Knowledge algorithm using Reinforcement Learning" *2021 3rd Novel Intelligent and Leading Emerging Sciences Conference (NILES)*, 2021, pp. 169-174, doi: 10.1109/NILES53778.2021.960055

LANGUAGES

- I coded in C, C#, PHP, Java, and Python.
- I used HTML5, CSS3, JavaScript, MYSQL, XML, and RDF.
- I used Keras, Tensorflow, and Theano in deep learning projects.
- I used data science libraries: scikit, numpy, pandas, seaborn and nltk.
- Familiar with: LINUX System administration.

SOFTWARE PROJECTS

- **Multi-dataset image classification with Memory Networks**
- **Network Packets analysis using Memory Networks**
- **Student-Teacher Network**
- **Prediction of Nanoparticles size using transfer learning on TEM images.**
- **Neural Knapsack solver**
A neural solver for solving the Knapsack problem.
- **Sentiment Analysis with deep learning**
- **News Headlines Generation**
A news headlines generator using long-short term memory.
- **MouseRNN**
Mouse actions tracking and prediction using recurrent neural networks. The model predicts mouse position and action. The model uses on-line training with user data.
- **Emotion Recognition**
An Emotion recognition app using Convolution neural networks. (A graduation project mentor at Faculty of Science – Alexandria University)
- **Deep Algorithmic Trading**
Prediction of stock market returns using deep learning techniques.
- **Stack LSTM**
Teaching LSTM and GRU (Gated Recurrent Units) to act as Stacks.
- **GraLib**
A simple graph library in java, implements basic graph algorithms (e.g., BFS, DFS, etc...)
- **Mars Scout**
Developer of a 3D game (Unity 3D Engine) simulates life on Mars Lava tubes. Won in NASA SPACE APPS hackathon – Human Category
- **Stor.ion: CRM software**
A CRM software (locally hosted) manage inventory, bills, customers, etc...

ARTICLES

I write articles about artificial intelligence hosted on my [blog](#)

AWARDS

NASA SPACE APPS Cairo Local winner in Human challenge held at Nile University in April 2015.

VOLUNTEER WORK

- **IEEE Alexandria Student Branch** Website committee volunteer (January 2015 – January 2016)
- Technical Committee Head at **Robabkia Team** (March 2015 – October 2015)
- I gave a 5-days workshop "Web development" at Egyptian **Syndicate of Scientific Professions – Alexandria** (March 2014)
- IEEE Alexandria Student Branch **ITW '15 Conference** Presenter. (September 2015)

REFERENCES

- Dr. Ali Wagdy Mohamed
Associate. Prof., American University and Faculty of graduate studies for Statistics, Cairo University
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- Dr. Abdallah Awad Aboutahoun
Associate Professor of Pure Mathematics Department of Mathematics and Computer Science
Faculty of Science – Alexandria University
email: tahoun44@yahoo.com
- Dr. Ashraf Said Ahmed Elsayed
Associate Professor of Computer Science - Department of Mathematics and Computer Science
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