

Eid Alkhalidi, Ph.D.

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(Last updated February 13, 2024.)

Basic Info

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- With a Ph.D. in Electrical Engineering and more than 8 years of focused academic research, I offer an extensive background in AI and autonomous systems for the Lead IT Systems Analyst role at Aramco. During my doctoral studies, I made significant contributions by developing innovative methods for Ensemble Optimization in Histological Image Classification. Utilizing advanced algorithms such as Genetic Algorithm, PSO, Fuzzy Logic, Differential Cartesian Genetic Programming, and Clonal Selection Algorithm, I optimized ensembles of CNNs to maximize classification accuracy. These contributions have been recognized through publications in prestigious journals, including IEEE Access, highlighting my commitment to advancing knowledge and innovation in the field.


In addition to my academic achievements, my entrepreneurial industry experience includes serving as an AI Consultant at NMK, a startup in its establishing stage and an Autonomous Driving Startup. This role allowed me to deepen my expertise in AI technologies, where I led initiatives to establish experimental environments and conducted research aimed at developing AI-driven solutions for assisted automated driving. This project-based experience honed my ability to innovate and deliver tangible results in dynamic settings.




As I transition into the role of Lead IT Systems Analyst at Aramco, I am enthusiastic about leveraging my research background and entrepreneurial industry experience to drive digital transformation and operational excellence within the organization. With a passion for problem-solving and a deep-rooted commitment to innovation, I am well-prepared to lead high-performing teams and deliver solutions that propel Aramco forward in its mission.

Institutions

2017--2022	Ph.D. in Engineering <i>University of Toledo, Toledo, Ohio, USA</i> Focusing on medical image processing, Artificial Intelligence and Deep Learning. Advisor: Dr. Ezzatollah Salari .
Dissertation Title: <i>Ensemble Optimization for Histological Image Classification</i>	
2015--2017	M.S. in Electrical Engineering <i>University of Toledo, Toledo, Ohio, USA</i>
2014	B.S. in Electrical Engineering <i>Oklahoma State University, College of Engineering, Architecture and Technology</i> Stillwater, Oklahoma, USA

Publications

2022	Ensemble Optimization for Histological Image Classification <i>Dissertation, University of Toledo</i> Committee: Dr. Ezzatollah Salari , Dr. Kim, Junghwan ., Eddie Y. Chou , Ph.D. , P.E. , Dr. Richard G. Molyet .
DEC 2022	E. Alkhalidi and E. Salari, "Ensemble Optimization for Invasive Ductal Carcinoma (IDC) Classification Using Differential Cartesian Genetic Programming," in IEEE Access, vol. 10, pp. 128790-128799, 2022, doi: 10.1109/ACCESS.2022.3228176. IEEE Access  https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=arnumber=9978635

2022	Alkhaldi, E. & Salari, E. ``Ensemble Optimization Using Clonal Selection Algorithm for Breast Cancer Histology Image Classification" <i>International Journal of Computer Science and Technology (IJCST) Vol. 13, Issue 4, Oct - Dec 2022</i>  https://www.ijcst.com/vol12/issue1/3-eid-alkhaldi.pdf
2021	Alkhaldi, E. & Salari, E. ``Adaptive PSO-Based Ensemble Optimization for Histology Image Classification" <i>International Journal of Computer Science and Technology (IJCST), Vol 12, Issue 1, Version Jan-March 2021.</i>  https://www.ijcst.com/vol12/issue1/3-eid-alkhaldi.pdf
2019	Alkhaldi, E. & Salari, E. ``Genetically Optimized Heterogeneous Ensemble for Histological Image Classification" <i>International Journal of Science and Engineering Investigations (IJSEI), 8(95), 113-118.</i>  http://www.ijsei.com/papers/ijsei-89519-16.pdf

Entrepreneurial Startup Experience

FEB 2023 - Present | **Co-founder & Senior AI Consultant, NMK (*Autonomous Driving Startup Company*)**

Responsibilities:

- Actively involved in the establishment phase of NMK, a startup in the establishment stage specializing in cutting-edge autonomous driving technology, offering innovative solutions designed to revolutionize the automotive industry.
- Led AI research and development aimed at enhancing the performance and capabilities of autonomous driving technologies.
- Collaborated closely with cross-functional teams, including engineers, designers, and product managers, to translate business requirements into technical solutions.
- Conducted extensive research on cutting-edge AI techniques and autonomous vehicle technologies to drive product development and innovation.
- Provided technical leadership and mentorship to junior team members, fostering a culture of continuous learning and professional growth.
- Contributed to strategic planning and a road-map for AI-driven features and products, aligning initiatives with company goals and market trends.

Achievements

- Spearheaded the development environment and optimized the workflow of development and testing, significantly enhancing the productivity of the team.
- Significantly enhancing the safety and user experience of NMK's products by introducing Autonomous Emergency stop system.
- Assisted in establishing strategic partnerships with governmental agencies such as the ministry of transportation. This collaboration expanded market reach and drove revenue growth.
- Initiated the development of an e-commerce platform www.nmk.sa, providing a streamlined avenue for product sales. This initiative resulted in a notable increase in sales volume, with a growth rate exceeding 50%, demonstrating the platform's effectiveness in reaching customers and driving revenue.

Licenses & Certifications

2024	Generative AI with Large Language Models  <i>Coursera, issued Jan 2024</i>
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2018	Improving Deep Neural Networks: Hyperparameter Tuning, Regularization And Optimization WWW <i>Coursera, issued March 2018</i>
2018	Neural Networks and Deep Learning WWW <i>Coursera, issued February 2018</i>

Languages

HUMAN	Arabic, English
MACHINE	Python, Matlab/GNU Octave, bash/shell, C, C++ , markup languages including \LaTeX / X_{\LaTeX} , Markdown, basic HTML.
DEEP LEARNING	PyTorch, TensorFlow, Keras, Fastai and Sikit-Learn
OTHER TOOLS	OpenCV, MATLAB, DEAP (Genetic optimization framamework) , Linux



Research Interests

- Artificial Intelligence
- Digital Image Processing, Signal Processing and Communication Systems
- Applications of Artificial Intelligence in Medical images, healthcare systems, Cybersecurity and Finance
- Machine Learning, Deep Learning, Data Science and Big Data
- Hyperparameter Tuning, Non-convex Optimiation, Numerical Methods and Biologically Inspired Computing

Presentations

DEC 2022	PhD Dissertation Defense <i>``Ensemble Optimization for Histological Image Classification''</i>
APRIL 2022	PhD Proposal Defense <i>``Ensemble Optimization for Histological Image Classification''</i>
OCT 2021	Optimized PhD Workflow Tutorial for UT grad students <i>``LaTex, BibTex, Mendeley and Emacs workflow for writing PhD dissertations''</i>

Public Code and Scripts

PUBLISHED	Histology Image Classification models for ICIAR and IDC  <i>Various pretrained models for breast cancer detection in histology images. Achieved 88% accuracy on the ICIAR WWW dataset</i>
PUBLISHED	PhD Emacs  <i>Rich-featured and minimal Emacs configuration ideal for researchers and grad students</i>

References

References can be provided upon request to further attest to my qualifications and suitability for the role. Please feel free to reach out via email for further details.