Mayadah Mahmoud Alhashem

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Summary of Qualifications

- Strong programming skills in *Python and MATLAB*, utilizing them to develop innovative engineering solutions and models.
- Proficient in *data science, AI, and machine learning*, applying these skills to enhance engineering modeling and automate processes.
- Demonstrated *inventive thinking* with patent publications and submissions, contributing to technological advancements.
- Excellent communication and public speaking skills, effectively presenting complex concepts to diverse audiences.
- Passionate about knowledge sharing and mentoring, with experience instructing gifted students in petroleum engineering.

Education

M.S **UC Berkeley** (online) *Current*
    Masters of Information and Data Science
Nanodegree **Udacity** (online) *Jan 2018*
    Machine Learning Engineering
M.S. **King Abdullah University of Science and Technology** (Thuwal, Saudi Arabia) *May 2017*
    Mechanical Engineering (GPA: 3.5)
B.S. **UC Santa Barbara** (Santa Barbara, California) *June 2015*
    Chemical Engineering

Experience

Saudi Aramco *Saudi Arabia, Dhahran – Artificial Lift Focus Area (ALFA) EXPEC Advanced Research Center (ExpecARC)*
(2023 – Current)
- Building user interfaces for coded models using Dash in Python
- Deployment of the ESP Replacement Forecast (RF) module of for MIDAS, a data-driven monitoring and predictive tool for Aramco's Electrical Submersible Pumps (ESPs)
- Creating a Microsoft Azure Repository and building the web application on OpenShift to run the RF module on the server

Saudi Aramco *Saudi Arabia, Dhahran – Artificial Lift Div. (ALD) Production & Facilities Development Department (P&FDD)*
(2021 – 2022)
- Technical evaluation of vendors' digital and data-driven solutions
- Attending Dismantle and Inspection Failure Analysis jobs at service companies facilities regularly
- Issuing performance reports to executive management

Saudi Aramco *Saudi Arabia, Dhahran - Long Range Reservoir Studies Div. (LRRSD) NA Reservoir Management Department (NRMD)*
(2020 – 2021)
- Engaged in initial phases of an integrated reservoir study
- Developed Python scripts that automates time-consuming internal processes
- Worked in collaboration with the Petroleum Engineering 4.0 team in Formation Testing Digital Solutions (FTDS)

Saudi Aramco *Saudi Arabia, Dhahran - Flow Assurance Unit (FAU), Production & Facilities Development Department (P&FDD)*
(2017 – 2019)
- Completed flow assurance reports and studies using OLGA simulations, analyzing results, and reporting recommendations
- Wrote a white paper on the Joule-Thomson (JT) Effect Phenomena

Research Experience

King Abdullah University for Science and Technology *Saudi Arabia, Thuwal*
    Machine Learning in Combustion Kinetics Research Project (May 2017 – Sep 2017)
- Built regression models to study the kinetics of combustion reactions in Dr. Mani Sarathy's lab on MATLAB
- Built a training and testing database using ChemKin to acquire combustion data for n-heptane.
- Developed a machine learning model to predict ignition delay times based on selected features for the n-heptane fuel
    Inkless Printer Research Project (Jan 2017 – May 2017)
- Studied my patented idea: inkless black-and-white printing via paper pyrolysis with lasers under the supervision of Dr. Robert Dibble
- Studied the effect of varying laser power density, speed of moving the laser, and laser distance via UV-Vis absorption test
    Biodiesel Production Research Project (Jul 2016 –Dec 2016)
- Worked in Dr. Robert Dibble's lab in the Clean Combustion Research Center to experimentally produce biodiesel
- Performed design and kinetic calculations on MATLAB to determine reactor specifications and reaction rates.
- Used *Gas Chromatography* (certified) to conduct analyses on the produced biodiesel
    Research Intern (Jul 2012 – Aug 2012)
- Synthesized and analyzed crystals with photovoltaic properties for solar cells applications
- Operated advanced chemical lab machines to create base crystals for the future publications

Masdar Institute - *Masdar City, Abu Dhabi, UAE*
    Research Intern (Jul 2015 – Aug 2015)
- Designed experiments to produce graphene from graphite via electrochemical exfoliation
- Showcased research poster titled *"Graphene Synthesis from Low Cost Carbonaceous Materials"* in the 6 th TRC-JCCP/Idemitsu International Symposium, (February 10-11 2016)

UC Santa Barbara *Santa Barbara, USA*
    Research Intern (Jun 2014 – Sept 2014)
- Investigated the hydrogenolysis of dihydrobenzofurane (a model compound for lignin) on a copper surface
- Used the *High Performance Computing Center* in the Materials Research Lab for electronic structure calculations with VASP software

Publications

Middle East Artificial Lift Conference & Exhibition 2022 (SPE-206943-MS) Presented *High Rate Slim ESP Viability Assessment in the Field* and published in OnePetro (Oct 2022)

US Patent (Publication #: US 10,905,975 B2) Published *Removable trap stations for hydrocarbon flowlines* as co-inventor (Feb 2021)

International Petroleum Technology Conference 2020 Presented "Machine Learning Classification Model for Multiphase Flow Regimes in Horizontal Pipes" (Jan 2020)

Abu Dhabi International Conference & Exhibition 2019 Presented "Supervised Machine Learning in Predicting Multiphase Flow Regimes in Horizontal Pipes" (Nov 2019)

Journal of Materials Science, Issue 18/2017 Published "*Synthesis of few-layer graphene-like sheets from carbon-based powders via electrochemical exfoliation, using carbon black as an example* " (Saad Sharief, Rahmat Susantyoko, Mayada Alhashem, Saif Almheiri) (Jun 2017)

7th Saudi Arabian Section of the Combustion Institute (SAS-CI) Annual Meeting
Presented "The Optimization of Paper Discoloration via Carbonization Using a CO_2 Laser for Inkless Black-and-White Printing" (May 2017)

US Patent (Publication #: US8988475 B2) Published *Blazer Printer* as lead inventor, a patent for a laser printer without ink using lasers (Mar 2015)

Projects

Lab7 Professional Innovator Bootcamp
> Mar 2023 – *Professional Innovator Bootcamp,* Aramco Lab7
> Developing interactive live dashboard and computer vision model for caffeine to biofuel reactor prototype

Identifying Flow Regimes via Machine Learning
> Jan 2016 – *Machine Learning Engineering,* Udacity Nanodegree
> Developing a classification algorithm for the degree's Capstone Project

Independent Studies on Environmental Sustainability
> Spring 2016 – Course: *Environmental Sustainability,* KAUST
> Conducted life cycle assessments on: **1.** Harnessing wave energy in the Red Sea, **2.** Comparative study of water transfer across borders versus using desalination plants, **3.** Space cooling for energy, water, & sustainability

Chemical Plant Economic and Technical Design
> Winter/Spring 2015 – Course: *Design Chemical Process (A & B),* UCSB
> Conducted an economic analysis and technical plant design for the production of styrene from ethyl benzene.

Designing a Solar Thermal Water Transport System
> Fall 2014 – Course: *Energy,* UCSB
> Studied an original design mimicking solar thermal desalination designs to transport water in 3rd world countries.

Designing a Solar Thermal Desalination Plant
> Fall 2013 – Course: *Heat Transfer,* UCSB
> Technically designed a solar thermal desalination plant based on heat transfer equations and energy balances.

Chemical Engineering Car
> Fall 2012 – Course: *Chem-E-Car Activity,* UCSB
> Built a mini-car that operated on water, using a reversible fuel cell. Also wrote a manual to operate the car.

Publishing a Wikipedia Article on Chemically Modified Electrodes
> Fall 2011 – Course: *University Writing for Engineers,* UCSB
> Wrote an article contribution for Wikipedia. URL: http://en.wikipedia.org/wiki/Chemically_modified_electrode

Awards

Generative AI Accelerator Winner
May 2023 – 4th place winner out of 80 in the Saudi Data & AI Authority and National Technology Development Program's Generative AI Accelerator Hackathon in Riyadh for the web-app 'MindFlow'

Aramco VP Recognized Youth-Initiated Study
May 2022 –Youth Initiated Study certificate obtained for Coaching Program to Foster Passion & Purpose in Employees. Recognition by Strategy & Market Analysis VP

Sheikh Khalid Bin Hamad Futsal Tournament
Jul 2018 – Main defender in *Eastern Flames*. We qualified to the semi-finals in 5v5 futsal tournament - aired on Bahrain live TV.

Toastmasters International
Sep 2018 – Completed Competent Communicator (CC) manual.
Feb 2018 – 3rd place winner in TM International Contest (Area level)

4th Middle East Process Engineering Conference (Technical Debate)
Oct 2017 – Won 1st place in the technical debate competition

Institution of Engineering & Technology, Present Around the World Competition (Engineering Presentation)
Jul 2017 – Won 2nd place in the regional competition (Europe/MENA)

3M Company Invent a New Future Challenge Business Competition
Apr 2016 – Won the semifinal round 3M INF Challenge. Qualified for the final international competition to represent Saudi in the US.

Leadership & Community Involvement

● **Aramco's AI Center of Excellence** – SME and active participant and presenter (2023)
● **Aramco's Petroleum Engineering & Development Community of Practice (CoP)** – SME and Core Member (2022)
● **Master of Ceremony** –2018 Middle East Artificial Lift Conference & Exhibition with H.E. Shaikh Ahmed bin Mohammed Al Khalifa, Minister of Oil, Kingdom of Bahrain
● **Main Speaker** – Upstream Professional Onboarding Program (UPOP) Graduation to the Senior VP of Upstream, Saudi Aramco. (Dec 2018)
● **Petroleum Engineering Instructor** – Volunteered to teach 2018 Gifted Students (Mawhiba) basic petroleum engineering concepts.
● **Football Trainer** – Aramco: Volunteered with the Eastern Flames football team to hold the 2nd Soccer Clinic for children with special needs (2017) and the 1st Soccer Clinic for females (2018).
● **Master of Ceremony** – KAUST: Appointed MC for: (1) 2016 KAUST Commencement Dinner (Dec '16)
  (2) 2016 Career Fair *Company Panel* (Oct '16)
● **Library Director Search Committee** – KAUST: Selected by the *Vice President for Academic Affairs* to serve in the recruiting committee to select the next Library Director, chaired by the *Dean of Academic Affairs* . (Aug 2016 – Aug 2017)
● **Student Orientation Leader** – KAUST: Selected by *Graduate Affairs* to organize a two-week intensive program to welcome new students. Organized events, resolved students' issues, & presented in the " *Life at KAUST''* panel. (Aug 2016/2017)
● **United Football Association** *President* – KAUST: Elected to become the president, advocated and carried out logistics to organize football matches and practices for male and female students. (Aug 2016 – June 2017)

Certifications	Technical Skills
● **LangChain for LLM Application Development** (DeepLearning.AI, 2023) ● **ChatGPT Prompt Engineering for Developers** (DeepLearning.AI, 2023) ● **Containers, Kubernetes, and OpenShift** (IBM, 2023) ● **Cloud Computing** (IBM, 2023) ● **Interactive Python Dashboards with Plotly & Dash** (2023) ● **Design Thinking for Innovation** (University of Virginia, 2022) ● **Machine Learning Rapid Prototyping with IBM Watson Studio** (IBM, 2022) ● **TIBCO Spotfire Data Analytics** (Udemy, 2021) ● **Introduction to Python by Microsoft** (edX, 2018) ● **30 Days of Code in Python** (Hackerrank, 2018) ● **Machine Learning Engineering Nanodegree** (Udacity, 2018)	● **Python** (Scikit-Learn, Pytorch, Dash, Plotly, Azure) ● **VS Code/Git** ● **Microsoft Azure** ● **Matlab** ● **Mathematica** ● **OpenShift**