Youssef Abo-Dahab

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https://github.com/JoeVonDahab

EXPERIENCES

University of California, San Francisco
Research Assistant and Instructor *Since* September 2024

- **Zhao Lab (Capstone Project):** Since June, I have been working on a drug repurposing project, where I am screening all current FDA-approved drugs using molecular docking and ML models to find candidates for Parkinson's disease. I am using such as AutoDock-GPU, Diffdock, and DiffDock-NMDN for docking and rescoring. I am also trying agentic frameworks for EHR & Literature exploring. The project is continuation of spring quarter project (building drug disvoery pipeline)
- **Giacomini-Chun Lab (RA): (Since Feb 2024)** I am working with a group that is discovering the impact of different drugs on the function of Blood-Brain Barrier Transporters. We are currently modeling SLC19A3 transporter (ThTr-2), using docking to screen drug affinity, then using high-throughput screening to see the effect of selected drugs on substrate uptake, and collecting data to build an ML model and guide research. I am also working on building an ML model to predict the effects of different mutations on transporter functionality using language foundational models such as DNA bert-2 and ESM-2.
- Instructor: (Jan - Feb 2025) I helped develop a 6-session mini-course 'Digital Therapeutics," where I taught Pharm.D students about using technology to treat patients. I taught prescription apps such as reSET, Welldoc, Bluestar, and Omada. How can these agents be integrated into the healthcare system while also addressing ethical considerations?
- Benet Lab (RA): (September - October 2024) Under the guidance of Dr. Leslie Z. Benet, I explored the application of Kirchhoff's Laws in clinical pharmacokinetics. I learned how these equations can be applied without relying on differential equations or mechanistic assumptions, such as the well-stirred model, providing a more intuitive approach to drug elimination. My role involved analyzing published research and discussing these concepts in group meetings.

Egyptian Ministry of Health
Clinical Pharmacist and Health Education Officer (Full Time) Dec 2021 – July 2024

- Clinical Pharmacist (Dec 2021 - Feb 2023).: Duties included collaboration with healthcare professionals to optimize medication management and selection, contributing to enhanced patient care and treatment efficacy.
- Head of Health Education Department (Feb 2023 - July 2024): Lead health education campaigns addressing key health concerns in Marsa Alam and surrounding areas.

Technical Institute of Nursing in Marsa Alam
Pharmacology Instructor (Seasonal) Oct 2022 – Feb 2024

- Passionately engaged in educating nursing students on key pharmacological concepts
- Utilized real-life examples and scenarios to communicate the foundations of the science underpinning medication actions

Alazhar University in Assuit
Research Assistant (Part-Time) Feb 2023 – Nov 2023

- Assessed the antimicrobial efficacy of fungi metabolites, in research aiming at finding new antimicrobials
- Utilized molecular docking to determine the efficacy of these molecules in-silico using Auto-dock (PyRx platform)

Freelance
Medical Research Writer (Part-time, on-demand) May 2021 – July 2023

- Created and successfully wrote 40+ comprehensive review articles across the different disciplines: Pediatrics, Emergency Medicine, Family Medicine, Pharmacology, GIT, Cardiology, and Neurology
- Performed qualitative systematic review of the literature, demonstrating expertise in critical analysis and synthesis of research data
- Developed and edited some case studies (3)

Concentrix Egypt
Sales Representative (Full Time) May 2021 – November 2021

- Worked as an inbound sales agent for SiriusXM Canada
- Significantly improved English speaking capabilities and enhanced communication, sales, and presentation skills
- was the number one achiever in my team (13 people) for 3 months

Ghamra Military Hospital (Military Service)
Soldier Hospital Pharmacist October 2019 – Jan 2021

- As an outpatient pharmacist, I dispensed a high number of prescriptions from 200 to 500 a day and advised physicians on drug alternatives
- In addition to clinical work. I had guard and transportation missions, labor work, and military training.
- I was working on average 60 to 80 hours a week

Ajyal Hospital
Hospital Pharmacist: Jun 2019 – October 2019

- I handled prescriptions for outpatient and inpatient pharmacy. I also operated an operation room pharmacy where I dealt mainly with anesthetic medications

PUBLICATIONS:

1. Al Mousa AA, Abouelela ME, Al Ghamidi NS, Abo-Dahab Y, Mohamed H, Abo-Dahab NF, Hassane AMA. Anti-Staphylococcal, Anti-Candida, and Free-Radical Scavenging Potential of Soil Fungal Metabolites: A Study Supported by Phenolic Characterization and Molecular Docking Analysis. Current Issues in Molecular Biology. 2024; 46(1):221-243. https://doi.org/10.3390/cimb46010016 (I participated In assessing the inhibitory ability of the detected compounds to the staph aureus tyrosyl-tRNA synthetase using Autodock)
2. Al Mousa AA, Abouelela ME, Mansour A, Nasr M, Ali YH, Al Ghamidi NS, Abo-Dahab Y, Mohamed H, Abo-Dahab NF, Hassane AMA. Wound Healing, Metabolite Profiling, and In Silico Studies of Aspergillus terreus. Current Issues in Molecular Biology. 2024; 46(10):11681-11699. https://doi.org/10.3390/cimb46100694 .
3. Hassane, A.M.A., Obiedallah, M., Karimi, J. et al. Unravelling fungal genome editing revolution: pathological and biotechnological application aspects. Arch Microbiol 207, 150 (2025). https://doi.org/10.1007/s00203-025-04360-w

PROJECTS:

1. Drug repurposing project: https://github.com/JoeVonDahab/drug_repurposing
2. Building Drug Discovery Pipeline: https://github.com/Socks2109/drug_discovery_pipeline
3. Prediction of the Clinical significance of DNA variants using a multi-modal deep learning approach employing both DNA and protein language models: https://github.com/JoeVonDahab/ThiamineTransporters
4. Deep learning model that classifies x-ray chest frontal imaging for 14 different classes of clinical findings: https://github.com/JoeVonDahab/Deep-Learning-Class/blob/main/CXR.ipynb
5. As part of the BMI 219 deep learning class, Developed and trained ML models, implementing gradient descent for optimization. Built linear and polynomial regression models, along with a fully connected neural network using PyTorch for predicting California housing prices. https://github.com/JoeVonDahab/Deep-Learning-Class (2025)
6. AI-Driven drug development: utilizing Morgan fingerprints to create molecule representations I created multiple ML models that predict their ability to inhibit the Human hERG channel. Achieved 85% accuracy and 0.92 ROC-AUC using random forest and 82% accuracy using neural network. https://github.com/JoeVonDahab/Final_Project/
7. Entresto drug discovery monograph, available online. Abo-Dahab, Y., & Arzamassky, A. (2025). Entresto (Sacubitril/Valsartan): How one company managed to have a monopoly on the most important drug for heart failure. Zenodo. https://doi.org/10.5281/zenodo.14911774 “
8. Developing New Anti-cancer drugs from Histone deacetylase inhibitors (Research group in the university from 2017 Summer to 2018 Summer) . Supervisor: Mamdouh Fawzy Ahmed Mohamed. Participated in using ChemDraw, Autodock Vina, programs to design and assess the efficacy of new anticancer drugs. Moreover, we synthesized these compounds in the Lab in order to be tested biologically

EDUCATION

Sohag University — Sohag, Egypt
Bachelor of Pharmacy (Pharm.D), Honors — 2014-2019
GPA: 3.92/4.0

University of California, San Francisco
Master's, Artificial intelligence and computational drug discovery and development. (GPA: 4.0) — Sept 2024-Present

SKILLS

- **Computational Tools**:
  - **Computational Drug Discovery & Molecular Modeling:** AutoDock Vina, UCSF Chimera, ChemDraw, AutoDOCK-GPU, DiffDock, Diffdock-NMDN, GNINA, AlphaFold, ESM-FOLD
  - **Pharmacometrics & PK/PD Modeling:** NONMEM, Pirana
  - **Programming Languages:** Python, R, Go, SQL, Bash (Shell)
  - **Version Control, Environments, Containtiziations**: Git, Conda, Docker, Wsl-2 (Ubuntu)
  - **Cloud & Parallel Computing**: Wynton HPC, Multi-Thread Processing Management, Multi-GPU Distribution
  - **Data Science & Machine Learning:** R Studio, Python (Pandas, NumPy, Scikit-Learn), ML models (Linear & Logistic Regression, Random Forest, K-Means Clustering, XGBoost)
  - **Deep Learning:** Fully Connected Networks (FCNs), Convolutional Neural Networks (CNNs)
  - **Foundational Models:** ESM-2 (Protein Language Model), DNA-BERT2.
  - **Software & Tools:** Adobe Photoshop (photo editing), Adobe Premiere (video editing), and Microsoft Office Suite
- **Research Skills**:
  - **Pharmacogenomics & Drug Discovery:** Experience in structure-based drug design and molecular docking
  - **Data-Driven Research:** Conducting literature reviews, systematic data extraction, and meta-analysis
  - **Scientific Writing & Communication:** Writing research papers, summaries, and scientific reports
- **Clinical Practice**:
  - **Comprehensive Patient Care:** Medication prescription, monitoring, and adjustment
  - **Pharmacotherapy & Treatment Optimization:** Skilled in evidence-based treatment selection and dose adjustments
  - **Clinical Evaluations & Decision-Making:** Experience in hospital and primary care settings
  - **Public Health & Patient Education:** Conducted health awareness campaigns and educational sessions

    - **Multidisciplinary Collaboration:** Worked alongside physicians, nurses, and healthcare professionals to optimize patient outcomes
- **Core Skills**:
    - **Effective Communication & Teaching:** Strong ability to explain complex concepts clearly
    - **Analytical & Strategic Thinking:** Strong problem-solving skills, particularly in research and healthcare settings
    - **Multilingual Proficiency:** Fluent in Arabic, English (IELTS Band 8), and German (B1)

CERTIFICATE

1. **SQL Fundamentals Track (DATA CAMP) 26h, May, 21, 2025: Link**
2. **Python for Everybody Specialization from University of Michigan (Coursera) 2024: Link**
3. **Data Science Specialization from IBM: Link**