

Khalifa Stafford

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Summary

Neuroscience and AI researcher with expertise in integrating machine learning, bioinformatics, and automation techniques to drive innovation across industries. Passionate about leveraging AI-driven insights to solve complex challenges, from healthcare and precision medicine to intelligent systems and software solutions. Looking to apply my skills in a dynamic, fast-paced research environment, where creativity and problem-solving are key to developing the next generation of intelligent systems.

Research Experience

Scientist

Merck | Cambridge, Massachusetts | April 2023 – September 2024

- Led the integration of AI-driven methods to identify novel patterns in large proteomic datasets of Alzheimer's disorder, increasing data generation by 900%.
- Developed machine learning pipelines in R, Excel, and Python, streamlining workflows across multidisciplinary research teams.
- Collaborated on cross-functional teams to translate AI models into drug discovery strategies, accelerating precision medicine innovation.

Senior Research Associate

Cellino Biotech | Cambridge, Massachusetts | May 2022 – December 2022

- Developed an automated platform for stem cell development using machine learning models, increasing cell production viability by 25%.
- Collaborated with data science teams to integrate AI-driven predictions into real-time processes, accelerating research timelines by 3 months.

Research Thesis

Icahn School of Medicine at Mount Sinai | New York, New York | August 2019 – January 2022

- Led Genome-Wide Association Studies (GWAS) using R and Python, identifying novel genetic markers for psychiatric disorders.
- Developed a polygenic risk score model that improved predictive accuracy by 20%, contributing to personalized treatment strategies in psychiatry.

Research Intern

Massachusetts General Hospital | Boston, Massachusetts | June 2019 – August 2019

- Conducted AI-assisted analysis of glioblastoma tumor biomarkers, contributing to novel therapeutic target identification for neuro-oncology.
- Utilized machine learning techniques to improve tumor progression prediction models.

Scientist I, Cell Therapy

Thermo Fisher Scientific | Frederick, Maryland | September 2018 – June 2019

- Optimized machine learning models to predict cell potency, increasing hematopoietic stem cell viability by 25%.
- Integrated AI-driven analytics into product efficacy testing, increasing throughput by 35%.

Research Fellow

National Institutes of Health (NIH) UGSP Scholar | Rockville, Maryland | June 2017 – August 2018

- Applied RNA sequencing and machine learning analysis to identify molecular pathways affected by Fetal Alcohol Syndrome, discovering 4 therapeutic targets.
- Developed a machine learning model predicting the effects of choline supplementation on fetal brain development with 90% accuracy.

Research Intern

Icahn School of Medicine at Mount Sinai | New York, New York | June 2016 – August 2016

- Conducted research on THC's effects on iPSC-derived neurons, contributing to a publication on cannabinoid neurobiology.

Research Intern

Icahn School of Medicine at Mount Sinai | New York, New York | June 2015 – August 2015

- Developed a protocol for reprogramming neuronal progenitor cells into astrocytes and neurons, contributing to a peer-reviewed publication.

Research Intern

Weill Cornell Medical College | New York, New York | June 2014 – August 2014

- Investigated hippocampal delta opioid receptor changes following oxycodone administration, contributing to opioid addiction research.

Research Assistant

Hunter College of CUNY | New York, New York | January 2013 – January 2016

- Conducted metabolic research on the Hadza tribe, analyzing caloric intake and metabolic health using advanced spectroscopy.

Clinical Experience

Behavior Care Technician

Behavior Frontiers LLC | Boston, Massachusetts | August 2023 – July 2024

- Applied AI-enhanced analytics to optimize treatment plans for children with autism, increasing treatment plan effectiveness by 30%.
- Integrated automated data tracking systems, reducing manual input by 50% and enabling data-driven therapy adjustments.

Patient Care Associate II

Massachusetts General Hospital | 2022

- Assisted geriatric patients with personal care, vital signs, dressings, and EKGs.

Study Abroad - Primary Healthcare Model in Rural India

Comprehensive Rural Health Project, Jamkhed, India | 2016

- Trained in the primary healthcare model used by US-trained physicians in rural areas.
- Volunteered at the local preschool and science center, engaging with the community.

Shadow - Neurosurgery

Massachusetts General Hospital | 2019

- Shadowed neurosurgeon William Curry, observed cases including aneurysm clippings and pituitary adenomas.

Shadow - Psychiatry

National Institutes of Health | 2018

- Shadowed psychiatrists in an alcohol treatment clinic, observed counseling for patients undergoing alcohol abuse treatment.

Shadow - Neuro-Pathology

Massachusetts General Hospital | 2019

- Observed pathology cases, learned to identify brain tumors under the microscope.
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Education

Boston University School of Medicine

Master of Science (MS), Medical Clinical Sciences | Expected 2026

Icahn School of Medicine at Mount Sinai

Master of Science (MS), Neuroscience | 2019 – 2022

City University of New York - Hunter College

Bachelor of Science (BS), Psychology and Neuroscience | 2012 – 2017

Certifications

- **Phlebotomy** – New York State Department of Health
 - **Electrocardiogram (EKG)** – New York State Department of Health
 - **Emergency Medical Technician (EMT)** – New York State Department of Health
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Leadership & Honors

- **National Institutes of Health Undergraduate Scholarship Program**
Competitive scholarship for disadvantaged students pursuing careers in biomedicine.
 - **SIROCs Study Abroad Award**
Awarded for academic excellence in international studies and research abroad.
 - **American Heart Association Travel Award**
Funded travel to present research at the American Heart Association Annual Meeting.
 - **MBRS-RISE Scholar**
NIH-supported program for underrepresented students, providing financial support and professional development.
 - **Michael D. Solomon Scholarship Award**
Merit-based scholarship for academic excellence and leadership potential.
 - **Thomas Hunter Honors Scholar**
Hunter College of CUNY
 - **Vice Chancellor's Excellence Leadership Award**
CUNY
 - **Childcare Student Success Award**
Awarded for contributions to CUNY's childcare program.
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Volunteer Experience

Childcare Volunteer

The Children's Learning Center, Hunter College | 2013 – 2017

- Baked goods and organized bake sales to raise funds for classroom materials for students and teachers.

Church Volunteer

Hillsong Church of NYC | 100 hours

- Served on the host team, welcoming guests and fostering community connections.

Conservation Volunteer

Jane Goodall Roots & Shoots Program | 2007 – 2010

- Participated in environmental campaigns and visited Tanzania to build fuel-efficient stoves.

Neuro ICU Volunteer

Mount Sinai Hospital | 2016

- Volunteered in the Neuroscience Unit, assisted nurses, and interacted with patients.
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Publications

1. **"IDH-mutant gliomas harbor fewer regulatory T cells in humans and mice"**
OncoImmunology, 2020 | Co-author
DOI: 10.1080/2162402X.2020.1806662

2. **"THC Treatment Alters Glutamate Receptor Gene Expression in Human Stem Cell-Derived Neurons"**
Molecular Neuropsychiatry, 2017 | Co-author
[DOI: 10.1159/000477762](https://doi.org/10.1159/000477762)
3. **"Sex Differences in Subcellular Distribution of Delta Opioid Receptors in the Rat Hippocampus in Response to Acute and Chronic Stress"**
Neurobiology of Stress, 2016 | Co-author
[DOI: 10.1016/j.ynstr.2016.11.002](https://doi.org/10.1016/j.ynstr.2016.11.002)
4. **"Rapid Ngn2-Induction of Excitatory Neurons from hiPSC-Derived Neural Progenitor Cells"**
Methods, 2016 | Co-author
[DOI: 10.1016/j.ymeth.2015.11.019](https://doi.org/10.1016/j.ymeth.2015.11.019)

Poster/Oral Presentations

1. **"Immunological Characterization of Isocitrate Dehydrogenase Mutated Tumors"**
Oral Presentation | Massachusetts General Hospital | 2019
2. **"Transcriptomic Analysis of a Choline Rescue Model of Fetal Alcohol Syndrome"**
Poster Presentation | National Institutes of Health | 2018
3. **"Effects of THC Exposure on NGN2-Induced Neurons"**
Oral Presentation | Hunter College | 2016
4. **"Establishing a Stem Cell Platform for Uncovering Schizophrenia Risks"**
Poster Presentation | Annual Biomedical Research Conference for Minority Students (ABRCMS) | 2015
5. **"Hadza Hunter Gatherer's Sugar Intake: Implications for Western Health and Diet"**
Poster Presentation | Hunter College | 2014
6. **"Female Rat Hippocampal Delta Opioid Receptors Following Stress and Oxycodone Exposure"**
Oral Presentation | Leadership Alliance National Symposium | 2014
7. **"Female Rat Hippocampal Delta Opioid Receptors Following Stress and Oxycodone Exposure"**
Poster Presentation | ABRCMS | 2014
8. **"Hadza Hunter Gatherer's Sugar Intake: Implications for Western Health and Diet"**
Poster Presentation | ABRCMS | 2013
9. **"Effects of Delta-9 Tetrahydrocannabinol on NGN2-Induced Neurons"**
Poster Presentation | Icahn School of Medicine at Mount Sinai | 2016
10. **"Establishing a Stem Cell Platform for Uncovering Schizophrenia Risks"**
Poster Presentation | Icahn School of Medicine at Mount Sinai | 2015
11. **"Female Rat Hippocampal Delta Opioid Receptors Following Stress and Oxycodone Exposure"**
Oral Presentation | Undergraduate Research Conference at Hunter College | 2015

Skills

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| <ul style="list-style-type: none"> • Machine Learning & AI Integration • Bioinformatics | <ul style="list-style-type: none"> • Data Analysis (Python, R, Excel) • Stem Cell Biology • Genomic & Proteomic Studies | <ul style="list-style-type: none"> • Automation & Data Pipelines • Cross-disciplinary Collaboration • Flow Cytometry & qPCR |
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