

Khaled Abughoush

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EDUCATION

Cornell University, Cornell-Tech, New York City, New York
Masters in Operations Research and Information Engineering

May 2022
Cumulative GPA: 4.11

Northwestern University, Evanston, IL (High Honor Roll)
Bachelor of Science in Industrial Engineering and Management Science

Aug 2021
Cumulative GPA: 3.69/4.00

WORK EXPERIENCE

PwC - Associate & Senior Associate - Data & Analytics, Financial Crimes Unit
Products & Solutions Development:

Aug 2022 - Aug 2025

- **AML Rules Tuning Automation:** Built a locally-hosted, modular tuning toolkit for 'Above/Below the Line' testing and reconciliation across 50+ rulesets. Empowered regional teams to deploy independently, reducing manual analyst time by 21 hours per rule and driving **\$18K in cost savings per deployment**.
- **Red Flag → Typology:** Designed an LLM-powered system (domain-tuned) to link regulatory red flags to internal AML typologies/themes. Used regulatory definitions to achieve **60+ hours saved per mapping cycle**, improved audit transparency.

Fraud Investigation Workflow Optimization:

- Designed PowerBI dashboards to track team metrics (AHT, throughput, profitability); analyzed performance to set thresholds, identify top/low performers, and drive a 31% SLA improvement that informed client staffing renegotiation.
- Built **automated report refresh pipelines and notification logic** using DAX and PowerBI service integrations, enabling real-time performance alerts and data-driven team management.
- Developed a **link analysis engine** using transactional and case metadata to uncover fraud ring associations based on behavioral clustering and shared entities, reducing backlog by 18% and saving **\$40K in resource costs over 3 months**.
- Created a centralized performance tracking system integrating data from multiple case management tools, improving visibility across 150+ investigators and enabling consistent operational reporting across regions.

Fraud Inout Monitoring Model:

- Designed and implemented **SAS-based data pipelines** to monitor real-time inputs across 12+ machine learning models, analyzing transactional and customer-level features for anomalous shifts using **standard deviation, IQR, and median change thresholds**.
- Developed a framework for **input drift detection** by segmenting features by risk category and applying significance testing to identify material deviations from historical norms.
- Created **daily, weekly, and monthly monitoring reports** with actionable thresholds tailored to model sensitivity, presenting findings and escalation protocols to executive risk committees to support governance and model performance assurance.
- Recommendations from this work were integrated into the client's model monitoring playbook, improving input stability tracking and contributing to a **15% reduction in false positive alerts**.

HONORS AND AWARDS

1st Place PwC Financial Crimes AI Innovation Challenge

May 2025

- Proposed AI concept to track team performance, streamline setup, and inform future managed service engagements.

Top 5 - PwC Cyber Risk Regulatory AI Innovation

Feb 2025

- **SAR Narrative Generator (Top 5 Finalist – PwC CyberRisk AI Global Challenge, 2025):** Designed an LLM-based pipeline (LLaMA 3.1) to auto-generate suspicious activity reports (SARs) from alert metadata → **saved 20–40 min/case, \$30/analyst**.

Northwestern IEMS Department Award 2021

Jun 2021

- Selected for significant contributions to academic research and the student community.

PROFESSIONAL ORGANIZATIONS

Reviewer in peer reviewed, Complex and Intelligent Systems Journal

Oct 2024 - Present

- Evaluate manuscripts related to machine learning, data science and AI.

Member of Hackathon Raptors Association

Aug 2022 - Present

- Judge for **RetroAI Quest Hackathon**, assessing AI-driven interactive fiction projects blending retro text adventures with LLMs.
- Judge for **Humanizing AI Text Hackathon**, evaluating submissions focused on emotionally resonant, human-like AI writing.

PROFESSIONAL CERTIFICATIONS AND LICENSES

Blockchain Enhanced Anti-Money Laundering and Fraud Detection

May 2023

- **TRM Crypto Fundamentals Certification (TRM-CFC), Certified Investigator, Advanced Crypto Investigator, Crypto Compliance Specialist, and TRM Academy Certified Expert.**

PUBLICATIONS ([GOOGLE SCHOLAR](#))

- Unveiling the Dynamics of Open-Source AI Models (HICSS 2025), [Azarm M., Sangari, E., and Abughoush, K \(2025\)](#)
- Stroke Systems Optimization Modeling (ISC 2021), [Abughoush, K \(2021\)](#)

CORE

Computer: Proficient in Python, SAS, PowerBI, SQL, R, and Excel

Languages: English and Arabic (Fluent)