ALYSSA MECZKOWSKA

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EDUCATION

St. John's University **Queens, NY**
Computer Science, B.S. *August 2023 – May 2026*

- **GPA:** 4.0
- **Relevant Coursework:** Advanced Data Structures, Database Management Systems, Software Design Methods, Discrete Math

PROFESSIONAL EXPERIENCE

Collins College of Professional Studies **Queens, NY**
Quantum Computing Researcher *May 2025 – Present*

- Build OMNeT++ simulations integrating CRYSTALS-Kyber PQC with BB84 QKD, developing C++ modules via liboqs and OpenSSL AES-256 to secure vehicular network key exchange
- Configure Ethernet, LTE/C-V2X, and high-mobility scenarios with INET and SimuLTE, analyzing latency, throughput, and crypto timings to benchmark hybrid PQC–QKD performance

Bukhari Lab **Queens, NY**
Machine Learning Research Assistant *April 2025 – Present*

- Collaborate with a team of 4 student researchers and a panel of practicing clinicians to engineer a React/Node.js dashboard that lets clinicians review and tag AI-predicted ICD/CPT codes
- Design end-to-end NLP pipelines (spaCy + HuggingFace) to process EMR notes, extracting structured medical concepts
- Fine-tune BioBERT on 10K MIMIC-IV notes to detect burnout indicators, enabling early-warning alerts with a 0.84 F1 score

Vázquez Group **Queens, NY**
Cheminformatics Research Assistant *March 2025 – Present*

- Compute geometries and vibrational spectra for 1000+ molecules using B3LYP/6-31G**, identifying and creating a dataset of key conformers for keto enol tautomerization
- Develop Random Forest and XGBoost models that achieve $R^2 = 0.71$ for predicting keto-enol equilibrium constants
- Awarded research funding through the Clare Boothe Luce Summer Research Award

Daisy Property Management **New York, NY**
Operations Intern *May 2025 – August 2025*

- Partnered with finance and payroll teams to build and optimize 3 end-to-end workflow automations, processing 5K+ documents in testing and development alone, reducing document processing time by 95% and minimizing manual handoffs
- Enhanced internal AI workflows by developing and refining API-driven queries, improving task accuracy and reducing manual intervention time from 3 days to under 5 minutes

University Learning Commons **Queens, NY**
Computer Science and Math Tutor *October 2024 – May 2025*

- Provided 150+ hours of individualized CS/math instruction, boosting average student grades by 25% across 30+ repeat tutees
- Awarded 'Tutor of the Month' for developing interactive problem-solving modules that increased student engagement

RESEARCH PROJECTS

Medicaddie – AI Medical Coding Platform

- Engineered a clinician review interface for AI-predicted medical codes, with an NSF-funded AI platform now entering testing with medical coders to enhance accuracy and accelerate healthcare billing

The Utilization of Machine Learning Modeling for Predicting Significant Factors of Keto-Enol Tautomerization

- Generated quantum chemistry–based molecular descriptors from B3LYP/6-31G** calculations, applied feature selection to identify top predictors of keto–enol equilibrium constants, and trained Random Forest/XGBoost models ($R^2 = 0.71$)

A Narrative-Driven Computational Framework for Clinician Burnout Surveillance

- Developed a BioBERT-based NLP pipeline processing 10K physician notes to detect early indicators of clinician burnout, supporting timely interventions that safeguard care quality

LEADERSHIP

ACM Student Chapter **Queens, NY**
Social Media Coordinator *May 2025 – Present*

- Lead chapter-wide digital engagement by managing a 150+ member Discord community and coordinating Instagram/LinkedIn content calendars—driving a 45% boost in post engagement and a 30% uptick in event attendance

Student Technology Governance Group **Queens, NY**
Board Member *October 2024 – Present*

- Advocate on behalf of the student body for technology improvements, such as pushing for modern IDEs (IntelliJ, VS Code)
- Lead Wi-Fi upgrade initiatives across 3 academic buildings, boosting network uptime by 25% and reducing connectivity complaints

PRESENTATIONS

Meczkowska, A., Vendome, A., Lindberg, G. E., & Vázquez, F. X. (2025). *The Utilization of Machine Learning Models for Predicting Significant Factors of Keto-Enol Tautomerization*. Poster presented at the MERCURY Conference, University of Pittsburgh, Pittsburgh, PA.

TECHNICAL SKILLS

Programming Languages: Python, Java, C++, JavaScript, TypeScript, SQL, HTML/CSS
Frameworks & Libraries: React, TensorFlow, PyTorch, scikit-learn, BioBERT, HuggingFace, spaCy, pandas, NumPy
Tools & Platforms: Git/GitHub, Linux/Vim, Docker, Postman, PostgreSQL, Node.js, Jupyter, Psi4, Mimic III/IV