

Edison Essien

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EDUCATION

Drexel University

Expected Graduation: June 2027

B.S. Biomedical Engineering | Concentrations: Tissue Engineering & Bioinformatics | GPA: 3.8/4.0

Dean's List: Fall 2022, Winter 2023, Fall 2023, Winter 2024

EXPERIENCE

Merck & Co., Inc.

Mar–Sep 2026

Global Science, Engineering and Commercialization Co-Op

- Developed Python anomaly-detection workflows in Seeq Data Lab to analyze pharmaceutical process signals.
- Engineered PI/Seeq time-series feature matrices with batch identifiers and manufacturing process-phase context.
- Exported anomaly scores, signal summaries, and traceable CSV review packages for subject-matter experts.

The National Institute for Coordinated Health Care

Mar–Sep 2025

Language Access Co-op

- Researched language-access programs to support healthcare communication and ongoing program operations.
- Organized research findings, project records, and program documentation to support information sharing.
- Coordinated project activities with program and operations teams to support delivery and milestone tracking.

Temple University School of Medicine

Mar–Sep 2024

Brain Computer Interface (BCI) Research Assistant

- Developed Python and MATLAB workflows with NumPy, SciPy, and MNE for EEG processing and BCI research.
- Processed EEG signals and developed classifier code for brain–computer interface communication research.
- Applied AutoCAD, SolidWorks, and Autodesk Fusion to assistive neck-brace CAD work for patients with ALS.

ENGINEERING AND SOFTWARE PROJECTS

Drug Delivery Modeling | DePuy Synthes Senior Design

2026–Present

- Contributing to a 5-member team modeling spatial drug transport over time from coated intramedullary nails.
- Developing design rationale and verification/sensitivity requirements for drug-release and transport modeling.
- Defining model requirements around nail geometry, coating thickness, drug loading, and tissue transport.

OncoDetect | Lung Nodule Classification | [Source Code](#)

Python, TensorFlow, React

- Integrated a 23.85M-parameter ResNet50 model with React/FastAPI, image validation, and SQLite history.
- Added 14 API/UI regression tests for image uploads, error handling, persisted history, and workspace reset.
- Configured model readiness checks, 8 MiB upload limits, and 224 × 224 RGB preprocessing for inference.

Proteogen | Protein Sequence Generation | [Source Code](#)

Python, PyTorch, FastAPI

- Deduplicated 425 rows to 85 unique protein sequences (80% fewer rows) before seeded dataset splitting.
- Built a 2-layer, 4-head PyTorch generator with 5 composition controls, a FastAPI service, and FASTA export.
- Ran a 3-epoch CPU experiment with 68/8/9 train/validation/test sequences and a unigram baseline.

BioSignal Analyzer | ECG Analysis | [Source Code](#)

Python, SciPy, Streamlit

- Built ECG filtering and HRV workflows with 187-sample beat extraction and 5 interactive analysis views.
- Verified 36 regression tests covering filters, beat segmentation, model readiness, and consistent class labels.
- Implemented shared 360 Hz preprocessing, fixed class ordering, and subject-grouped data splitting.

TECHNICAL SKILLS

Languages: Python, SQL, MATLAB, JavaScript, C, Go, Java

Data and ML: pandas, NumPy, SciPy, scikit-learn, PyTorch, TensorFlow, MNE

Engineering: AutoCAD, SolidWorks, Autodesk Fusion; Seeq Data Lab, OSIsoft PI

Software: FastAPI, SQLite, PostgreSQL, React, Docker, Git, GitHub Actions; Power BI