

Valandy Pierre

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Education

University of Massachusetts Amherst, Amherst, MA

Expected: May 2027

Bachelor of Science in Biomedical Engineering

GPA: 3.69/4.0

Minor in Engineering Management & Mathematics

Honors Thesis: Machine Learning for mosquito age-grading (In Progress)

Licenses & Certifications: Lean Six Sigma Yellow Belt, AI Visualization

Relevant Coursework: Statistical Quality Control, Biomaterials, Differential Equations, Strengths of Materials, Biomechanics, Physics I & II

Skills

Computational & Data Analysis: Python (Pandas, NumPy), MATLAB (Signal Processing, Data Analysis), R (Statistical Analysis), SQL, Machine Learning (ANN, Classification & Regression), Data Visualization (Excel, Tableau)

In Vitro & Analytical: Mammalian Cell Culture, ELISA, PCR, Chromatography (HPLC/LC), Protein Purification, DNA Extraction, Flow Cytometry, Dynamic Light Scattering (DLS), Encapsulation Efficiency Assays, Standard Curves, Mechanical Testing

Software: ImageJ, SolidWorks, Arduino, Microsoft Excel

Languages: English, French, Haitian Creole, Spanish (Conversational)

Relevant Experience

Extern, Pfizer

July 2026 – Present

- ❖ Developing AI-powered document intelligence pipelines using Tesseract OCR, PaddleOCR, Retrieval-Augmented Generation (RAG), and LLMs to extract and classify pharmaceutical vendor data.
- ❖ Building and evaluating a RAG-based document retrieval system with LlamaIndex by optimizing chunking strategies and benchmarking OCR accuracy, retrieval quality, and classification performance.

Biotechnology & Bioentrepreneurship Summer Intern (B2BB), Morehouse School of Medicine

May 2026 – July 2026

- ❖ Conducted customer discovery research through patient surveys to identify barriers to understanding physician notes and navigating patient portals, informing the development of a user-centered AI healthcare solution.
- ❖ Developed a Business Model Canvas and value proposition, evaluating market opportunities, key stakeholders, revenue streams, and implementation strategies for an AI-powered digital health application.
- ❖ Created a mockup of an AI-powered patient portal assistant designed to translate medical terminology and explain physician notes in plain language, demonstrating the proposed user experience and core functionality.

Undergraduate Research Assistant, He's Advanced Analytical Lab

September 2024 – Present

- ❖ Developing and standardizing a reproducible Surface-Enhanced Raman Spectroscopy (SERS) workflow, including spectral preprocessing, quality control, and data management to improve experimental consistency.
- ❖ Designing and evaluating machine learning classification models for spectral data, using performance metrics such as confusion matrices to assess accuracy and optimize predictive reliability.

Biomedical Engineering Intern, Gao Research Group

June 2025 – August 2025

- ❖ Formulated and characterized lipid nanoparticles (LNPs) for in vitro and in vivo nucleic acid delivery studies using dynamic light scattering (DLS) and encapsulation efficiency assays.
- ❖ Assisted in evaluating intranasal LNP drug delivery through single-cell suspension preparation, PCR analysis, and data interpretation using Microsoft Excel.

Projects

Below-the-knee Prosthetic Ankle, Spring 2025

Designed a below-the-knee prosthetic ankle using CAD and biomechanics principles, selected materials for durability and lightweight performance, and evaluated the design through stress and strain analysis.

Leadership Experience

Vice-President, UMass National Society of Black Engineers (NSBE)

May 2026 – Present

- ❖ Lead strategic initiatives, corporate outreach, and professional development programming to support chapter growth and expand career opportunities for engineering students.

Resident Assistant, University of Massachusetts Amherst

September 2025 – Present

- ❖ Mentor and support 35 residents by fostering an inclusive living environment, mediating conflicts, and planning community-building programs that promote student engagement and well-being.

Programs Chair, InterVarsity Christian Fellowship

September 2025 – May 2026

- ❖ Managed the planning and logistics of campus events serving 80+ members, overseeing event coordination, communication, and volunteer support to ensure successful program delivery.

Interests & Affiliations

UMass iGEM (wet lab & finance team), EWB (Engineers Without Borders), Soccer, Volleyball, Crochet, Cooking, Martial Arts.