Aaron Colon

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Summary

Undergraduate researcher in Biostatistics & Health Data Science with experience in computational epidemiology, bioinformatics, and DNA computation; interested in data-driven public health forecasting and outbreak simulation

Education

Lehigh University, Bethlehem, PA   Graduation: May 2027
Biostatistics & Health Data Science, Pre-medicine | GPA: 3.77 | Dean's List x4

Easton High School, Easton, PA   Graduation: June 2023 Honors:
AP Scholar with Honors, High Honor Roll, Top 1% Graduating Class

Technical Skills:

- **Programming & Data Science:** Python, R , GitHub
- **Modeling & Analytics:** Epidemiological modeling (SIR), Simulation design, Feature engineering
- **Bioinformatics Tools:** HHPred, Phamerator, DNA Master, PhagesDB, GeneMarkS, DeepTMHMM, SOSUI
- **Data Visualization:** Matplotlib, ggplot2, Excel

Research Involvement

Sea-Phages/Sea-Genes   2023-2024

- Annotated the genome of Phage Hanako using bioinformatics tools such as DNA Master, PhagesDB, Starterator, GeneMarkS, Phamerator, BLASTp, HHPred, DeepTmHmm, and SOSUI.
- Identified gene start/stop sites, coding potential, and protein functions for GenBank submission to the National Center for Biotechnology Information (NCBI).

DNA Sticker Computation via Electrowetting   2023-Current

- Developed and tested a bio-inspired computing model using DNA stickers and electrowetting-on-dielectric (EWOD) technology to manipulate microfluidic droplets.
- Contributed to manuscript preparation and presented findings in research meetings.

Forecasting Disease Outbreaks using Temporal Networks in Congregate Settings   2024-Current

- Modeled real-time contact networks to forecast and mitigate superspreader events through predictive simulations.
- Assisted the modeling and simulation design in Python (pandas, networkx, matplotlib), showing that outbreaks can be significantly reduced by intervening only at high-density contact key points,
- Assisted in developing mathematical and empirical frameworks linking network density and infection dynamics to inform public health preparedness.