

# Michael J. Akinyemi

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## RESEARCH INTERESTS

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Computational Biology, Biotechnology, Immune Engineering, Systems Biology/Immunology, Structural Biology, Molecular Biophysics, Autoimmune Disorders

## EDUCATION

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### University of Central Florida

Biotechnology (B.S.)

*Genomics & Bioinformatics (Minor)*

*Computer Science (Minor)*

- GPA: 3.24
- Ronald E. McNair Scholar
- Relevant Coursework:
  - *Computer Science: Discrete Structures I, Computer Science II, Computer Logic & Organization, Object Oriented Programming*
  - *Biology: Immunology, General Microbiology, Biochemistry I, Genetics I, Quantitative Biological Methods*

Orlando, FL

Spring 2025

### Tallahassee Community College

Associate of Arts (A.A.)

- GPA: 3.88
- Phi Theta Kappa Honors Society

Tallahassee, FL

Summer 2022

## RESEARCH EXPERIENCE

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### University of Central Florida

College of Medicine

Advisor: Dr. Hung Nguyen

Research Assistant

- Independently developed immune cell datamining pipeline to analyze PBMC scRNA-Seq datasets to discover correlations between metabolic activity and the grafts vs leukemia (GvL) effect.
- Investigated correlation between the gut microbiome and immune cell behavior using machine learning models to integrate 16S rRNA-Seq & various single-cell assays.

Orlando, FL

December 2023 — Present

### Massachusetts Institute of Technology

Department of Chemical Engineering

Advisor: Dr. Brandon DeKosky

Research Assistant | MIT Summer Research Program

- Contributed to a project improving the efficiency of cell line generation for antibody library display systems by reducing the length of the donor plasmid.
- Successfully performed troubleshooting of restriction cloning experiments to construct donor plasmid for CRISPR/Cas9 system.
- Optimized clustering algorithms within bioinformatics pipelines to analyze BCR/TCR immune repertoire data collected through NGS.
- Developed automated data visualization tools capable of handling high-throughput sequence data.

Cambridge, MA

June 2023 — Present

## PRESENTATIONS

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### UCF Student Scholar Symposium

Poster

*Overcoming Challenges in CRISPR Vector Restriction Cloning to Optimize Generation of Immune Repertoires.*

Orlando, FL

March 2024

### Annual Biomedical Research Conference For Minoritized Scientists (ABRCMS)

Poster

*Generating a Stable Cell Line: Troubleshooting Restriction Cloning of a CRISPR Vector For Sequential Genome Insertion.*

Phoenix, AZ

November 2023

### MIT Summer Research Program Fall Extension Research Showcase

Poster

*Overcoming Challenges in CRISPR Vector Restriction Cloning to Optimize Generation of Immune Repertoires.*

Virtual

November 2023

**MIT Summer Research Program Showcase**Poster*Generating a Stable Cell Line: Troubleshooting Restriction Cloning of a CRISPR Vector For Sequential Genome Insertion.*Cambridge, MA  
July 2023**Institute for Protein Innovation (IPI) Surfacing**AttendeeCambridge, MA  
June 2023

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**OTHER EXPERIENCES**

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**Quantitative Methods Workshop**

Massachusetts Institute of Technology

Cambridge, MA  
January 2023

- Employed principal component analysis (PCA) and k-means clustering to differentiate cells of a scRNA-Seq PBMC data set.
- Used machine learning pipelines (CryoSPARC) to generate 3D protein structures from high-framerate movies of CryoEM data.

**Scripting Team Leader**

AvatarMC

Remote  
May 2017 — June 2022

- Developed both command-line & GUI-based automation tools to assist workflows of other teams.
- Designed quality assurance testing plans for experimental features.
- Assisted in writing & maintaining documentation of in-house scripting language.
- Wrote design documents for deliverable requests/feature improvement tasks.
- Led projects using professional management software (Phabricator).
- Directed team meetings & effectively delegated tasks.

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**HONORS, AWARDS & SCHOLARSHIPS**

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**McNair Summer Research Institute Scholarship***Ronald E. McNair Scholars Program*Orlando, FL  
August 2023**Conference Presentation Travel Award***UCF Office of Undergraduate Research*Orlando, FL  
November 2023**Florida Bright Futures Academic Scholars***Florida Department of Education*Tallahassee, FL  
December 2020**President's List (3 Times)****Dean's List (2 Times)**

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**COMMUNITY INVOLVEMENT**

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**Society for the Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS) | Vice President**

University of Central Florida

Orlando, FL  
April 2024 — Present

- Assisted president in managing club and leading officer meetings.
- Held general body meetings discussing tips/advice to help underrepresented students get started in research and the journey to graduate school.

**Active Minds | Secretary**

University of Central Florida

Orlando, FL  
December 2023 — Present

- Advocated for mental health and the importance of fighting against the negative stigmas associated with them.
- Organized club records, took meeting minutes & performed general administrative duties.

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**KNOWLEDGE & SKILLS**

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**Biological Research**

Restriction Cloning, Electroporation, Polymerase Chain Reaction (PCR), Gel Electrophoresis, Agarose Gel Extraction, Immunoprecipitation, Cell Culture, Murine Model Handling, Miniprep, Maxiprep, Autoclave Handling, Centrifuge Handling, Pipette Handling, Petri Dish Handling

**Programming Languages**

Python	Professional.
Bash/Shell	Advanced.
R	Advanced.
C++	Intermediate.
Java	Intermediate.
RegEx	Intermediate.

**Document Composition**

LaTeX	Advanced.
Word	Advanced.
Power-Point	Advanced.

**Microcontroller Development**

Arduino	Elementary.
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**Software**

Git	Advanced.
Jupyter	Intermediate.
PyMol	Intermediate.
Slurm	Intermediate.
Docker	Elementary.

**Operating Systems**

Linux/UNIX	Professional.
Windows	Advanced.
HPC-Clusters	Advanced.

**Natural Languages**

English	C2 level.
Spanish	A2 level.
Yoruba	A1 level.