

# Howard J. Nicholson III

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## **EDUCATION**

### **University of Maryland, Baltimore County (UMBC), Baltimore, MD**

Major: B.S., Chemical Engineering, Biology Track

Minor: Music

Honors: Meyerhoff Scholar, Howard Hughes Medical Institute Scholar,  
MARC U\*STAR Scholar, Honors College

Graduation Date: May 2021

### **Columbia University, New York City, NY**

M.S./Ph.D. Program, Biomedical Engineering

Honors: Presidential Fellow, Columbia Blavatnik Fellow

Expected Graduation Date: May 2026

## **RELEVANT RESEACH EXPERIENCE**

### **Stanford University**

#### **Summer Undergraduate Research Fellowship (SURF) Program**

**Research Scholar**

Summer 2020

Research Project: Evaluating the Role of Cytoplasmic Communication on Epigenetic Regulation

- Examined how cytoplasmic communication via tunneling nanotubes and extracellular vesicles can be used to counter epigenetic drift over the process of aging.

### **Georgia Institute of Technology & Emory University**

#### **Summer Undergraduate Research Experience (SURE) Program**

**Summer Intern**

Summer 2019

Research Project: Analyzing the Effect of Altered Hemodynamics on Sickle Cell Anemia Pediatric Strokes

- Studied the effect of different shear stress profiles to understand the biochemical pathway which predisposes children with sickle cell disease to experience strokes at an early age

### **University of Michigan**

#### **UM-SMART Program**

**Research Trainee**

Summer 2017

Research Project: Comparing the Re-Differentiation of Retinal Pigment Epithelial Cell Lines Grown on Various Substrates

- Compared marker expression for RPE cells grown on various substrates

Shadowing Experiences:

- Donna Marie Martin, M.D., Ph.D. (Clinical Genetics, Pediatrics)
- Jonathan Morrow, M.D., Ph.D. (Adult Psychiatry, Addiction Medicine)

### **UMBC**

#### **Dr. Leach Tissue Engineering Lab**

**Student Researcher**

2017-Present

Research Project: Prevention of RNA Aptamer Degradation to Create Biosensors for Therapeutic Drug Monitoring

- Determined a method to protect RNA from enzyme degradation in order to develop biocompatible sensors for efficient drug delivery

### **National Institutes of Health (NIH)**

#### **National Eye Institute, Ophthalmic Genetic and Visual Function Branch**

**Research Intern**

Summer 2016

Research Project: Development of a Deep Genotype-Phenotype Database for Heritable Eye Disorders

- Assisted a researcher in creating a genotype-phenotype database for patients with eye disorders from the clinical center of the National Eye Institute

### **National Institutes of Health (NIH)**

#### **National Eye Institute, Ophthalmic Molecular Genetics Branch**

**Research Intern**

Summer 2015

Research Project: Intragenic SNP haplotypes associated a mutation in PROM1 in two Pakistani pedigrees with autosomal recessive retinitis pigmentosa

- Conducted research to determine if a distant common ancestor relates two Pakistani families that carry the same gene mutation for the PROM1 gene

### **Howard University**

**Research Intern**

## Department of Anatomy, and Psychiatry & Behavioral Sciences

2015

Research Project: The Effect of Maternal Separation on the Development of Astrocytes

- Examined how a traumatic experience can leave long-lasting effects on the functionality of the brain and behavior during adulthood

## RELEVANT WORK EXPERIENCE

### UMBC

**Undergraduate Teaching Fellow**

Engineering Department

2017-present

- Taught weekly discussion courses, held weekly office hours, and graded various assignments

### UMBC

**Counselor**

**Meyerhoff Scholar Summer Bridge Program**

Summer 2020

- Mentored and advised an incoming cohort of Meyerhoff scholars while leading various team-building and professional development sessions

## ACHIEVEMENTS AND HONORS

### Presentation Awards

- Montgomery County, MD NAACP ACTSO Gold Medalist in Biology and National Bronze Medal Winner, 2015
- National Society of Black Engineers (NSBE) Fall Regional Conference First Place Research Presentation, 2017
- Annual Biomedical Research Conference for Minority Students (ABRCMS) Award for Outstanding Presentation
- NSBE Fall Regional Conference Second Place Oral Presentation, 2019
- AfroBiotech Conference, Second Place in Undergraduate Poster Presentations, 2019

### Honors

- Boy Scouts of America (2006-2016)
  - Eagle Scout
  - National Eagle Scout Association World Explorer Candidate, 2018
- Mt. Calvary Baptist Church: Bright Light Award, 2015 and Emerging Leader Award, 2017
- Undergraduate Research Award Scholar, 2018
- Forbes 30 Under 30 Scholar, 2019
- UMBC Chemical Engineering Student Leadership Award, 2021
- Columbia University Blavatnik Fellowship, 2021

## LEADERSHIP

- UMBC National Society of Black Engineers (NSBE), Pre-Collegiate Initiative Chair (2017-2018), Secretary (2018-2019), Vice President (2019-2020), President (2020-2021)
- UMBC Gospel Choir & Jubilee Singers, Member & Treasurer (2016-present)
- 3D UMBC, Head of Bioengineering, Head of Partnership & Outreach
- UMBC Retriever Leadership Institute, Fall 2017
  - Selected to participate in an immersive five-week leadership development program.
  - Gained proficiency in key leadership skills including communication, conflict management, team roles, and social identity.
  - Created a product of learning to demonstrate key leadership skills learned and showcase critical thinking and reflection skills.
- Meyerhoff Council Representative, 2018-present
- Student Government Association, Associate Director of Special Project & Flagship Initiatives, Prove It!, 2018
- Louis Stokes Alliance for Minority Participation Executive Board Representative, 2019-2020
- UMBC Inclusion Council Student Representative, 2020- present
- Truth, Racial Healing, and Transformation in Our Communities, Co-Moderator, 2020

## OTHER CLUBS AND ORGANIZATIONS

UMBC Black Student Union (BSU), Member (2016-present)

UMBC African Student Association (ASA), Member (2016-present)

UMBC American Chemical Society (ACS), Member (2016-present)

American Association for Cancer Research, Student Member, 2014, 2015

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UMBC Note-Taker, 2018 (Note-taking assistant for a student with a disability)

## **COMMUNITY SERVICE**

- NSBE Jr. (Next Generation Leadership Academy): Weekly math tutoring and mentoring sessions with middle and high school students.
- UMBC SUCCESS Peer (2016-2017): Class and lunch aide for adult college students with intellectual disabilities
- American Cancer Association, Relay for Life: Coordinated a team to raise money for cancer research
- Down Syndrome Buddy Walk: Established a team to walk and raise money for the Down Syndrome Network
- Global Brigades: Built wells for clean water and taught local students in Ghana
- Mt. Calvary Baptist Church: Young Adult, Music and Arts Team Leader, Mass Choir and Instrumental Ensemble

## **SKILLS**

MatLab, RobotC, Python, TrueBasic, MiniTab, Fireworks, Java, Photoshop, Microsoft Office