NIA RICH

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EDUCATION

Massachusetts Institute of Technology \ Cambridge, MA **September 2022 - Present**
Candidate for Masters of Architecture
Georgia Institute of Technology \ Atlanta, GA
Bachelor of Science in Electrical Engineering \ Highest Honors

INTERESTS

materials, fabrication and assembly, community sustainability, interdisciplinary design, technology aided design, race and collective memory

SKILLS

Programming: MATLAB, C++, html, css
Software: Rhino, SolidWorks, Adobe Illustrator, Adobe InDesign, Adobe Photoshop, Adobe Dreamweaver, AutoCAD, KukaPRC, MasterCAM
Fabrication: Laser cutting, soldering, 3D printing, casting, CNC, circuit design , wood-working

PUBLICATIONS

Deployable Origami Coils for Wireless UAV In-Flight Powering **IEEE WPT Conference 2023**
IEEE Wireless Power Transfer Conference Paper concerning origami coil wireless power transfer research conducted

PRESENTATIONS AND LECTURES

MIT Morningside Academy of Design Planetary Play Lightning Talks **Cambridge Science Festival 2024**
Presented a five minute lightning talk to students and educators on design based research for lunar and space habitats.

EXPERIENCE

Exhibition Design Assistant - Cristina Parreño, Magma Matter **January 2025 - March 2025**
Served as a design and fabrication assistant for pieces to be displayed in Venice
- Generated grasshopper scripts for quick design iteration and visualization
- Designed and built molds for glass and molten lava casts

Design Research Team Leader - Shoreline Project **Summer 2024**
Served as lead for a design team under John Ochsendorf for artist Elizabeth Turk's Shoreline Project
- Designed and prototyped an origami solar cell array for personal use.
- Oversaw and directed two undergraduate researchers in both the design and engineering aspects of the project.

Engineering and Fabrication Consultant **February 2024-September 2024**
Serve as an engineering and fabrication consultant under John Ochsendorf for artist Elizabeth Turk
- Developed a Grasshopper script that allows for real-time analysis of parameters and results of several large scale concrete sculptures.

Architectural Designer, Morningside Academy of Design **June 2023– January 2024**
Serve as a designer for interior spaces concerning MAD spaces within MIT's Metropolitan Warehouse Project as part of a two person team.
- Coordinated between several key stakeholder in the project to propose designs for interior spaces for Morningside Academy of Design and MIT architecture undergraduate spaces in the new MET Warehouse for MIT SA+P.
- Designed and rendered lobby and studio spaces to maximize flexibility
- Designed and prepared a mill-work package that proposed shelving that could serve as a system of storage, display and furniture.

Design Team Member, J. Yolande Daniels The BLACK City Astrolabe **January 2023 – May 2023**
Part of design and fabrication team for Gender and Geography Installation at Venice Biennale 2023
- Designed and implemented a system employing Grasshopper, Rhino and MATLAB for efficiently locating installation components
- Conducted several test models with a focus on materiality and methods of fabrication for wood and metal.
- Built a wooden scaled site model for the installation as part of a team of five.

Radio Frequency Engineer, ViaSat Inc. **May 2020 - August 2023**

Work within ViaSat's Antenna Systems Group as an RF engineer and designer for ground satellites

- Coordinated the assembly, test and documentation of a boresight tower antenna system with modifiable polarization and frequency bands to be used to test 19 to 24 meter diameter ground station antenna programs.
- Coordinating the design, test, and assembly of a 7 meter portable antenna.
- Serving as liaison between ViaSat and Georgia Tech's School of ECE for a senior design project concerning new analysis and fabrication techniques for a frequency selective surface.

Research Assistant, Georgia Tech ATHENA Group **August 2019 - May 2021**

Research under Texas Instruments and Semiconductor Research Corporation. Designing and fabricating of a blooming origami receiver coil for wireless drone powering.

- Designed, optimized, and fabricated a wide-band voltage doubler rectifier which cut cost in half and led to a more versatile wireless power circuit. The rectifier was fabricated by using inkjet printing and copper etching.
- Optimized and tested the integrated system of origami coils and rectifier at differing distances. Output voltages reached greater than the 15 Volt goal.
- Created a several page research summary and a 10 minute group presentation to successfully relay project details to various end-users.

Electrical Intern, Greenberg Farrow **June 2019 - August 2019**

Worked within electrical design, construction management, coordination, and quality control for commercial and retail projects

- Designed and coordinated the electrical set of a 500 square-foot drive-thru coffee shop
- Provided quality control revisions for commercial restaurant chains, modular gas stations, and modular car washes

Intern Architect, Hug & Associates, Architects **June 2015 - August 2018**

- Developed, modeled and organized standard details, detail families, and wall types for firm-wide Revit library
- Created schematic design sets and general marketing materials for 10+ multi-million dollar greek housing and mixed use projects for clientele and public review.
- Authored architectural sheet sets and construction management documents using Revit, Acrobat and Procore for greek housing projects such as Alpha Phi at Georgia Tech and Zeta Tau Alpha at NC State.

TEACHING

Teaching Assistant, Architectural Assemblies **Spring 2025**

Assisting Professors Adam Modesitt and Mark Goulthorpe in teaching students to the fundamentals of assembly and construction and their implications in design, materiality, and labor.

Teaching Assistant, Design Computation: Art, Objects and Space **Fall 2023 + Fall 2024**

Assisted Professor Larry Sass in teaching students to model and cnc their own flat-pack chair. This included holding a regular weekly lab section with students to go over 3D modeling, producing drawings and renderings, laser-cutting and 3D Printing scaled prototypes, and cnc-ing and assembling the final product.

Instructor, Tuskegee-MIT Fabrication Workshop **January 2024 + January 2025**

Designed and taught a one week workshop that asked a group of undergraduate students to 3D model and cnc a household object inspired by the archive surrounding MIT's first African American architecture graduate.

LEADERSHIP AND SERVICE

MIT NOMAS Co-Chair **June 2023 - Present**

- Coordinates and runs the executive board of the MIT chapter National Organization of Minority Architects.
- Representative and advocate for the Masters of Architecture Class of 2026

Opportunity Research Scholar Leader **August 2020 - May 2021**

- Appointed position
- Held weekly office hours to assist students with career goals, time management, and research skills.
- Aided the head of the program with event logistics and social media.

City of Refuge Elementary School Tutor **August 2018- March 2020**

Tutored elementary school students in the English Avenue area of Atlanta weekly during their after school program.

Cristo Rey Jesuit High School Freshmen Math Tutor **August 2018 - May 2019**

Tutored and aided a 9th grade math class for the charter school weekly