

Jack Cross

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Experience

United States Air Force

Military Officer

May 2023 - Present

Columbus, MS

- Oversee planning, design, and maintenance of base infrastructure and facilities to ensure operational readiness.

Virginia Tech

Graduate Research Assistant

August 2023 - December 2024

Blacksburg, VA

- **Thesis:** Retrofit of Reinforced Concrete Beams using Externally Bonded and Unbonded Fiber Metal Laminate
- Conducted four-point bending tests on concrete beams retrofitted with advanced fiber metal laminate composites.
- Created predictive models for various laminate layups and anchorage configurations to predict structural performance.
- Publication: [Virginia Tech Digital Repository](#)

Virginia Military Institute

Undergraduate Research Assistant

May 2022 - May 2023

Lexington, VA

- **Thesis:** Aggregate Optimization of High Strength Fiber-Reinforced Concrete
- Tested various local aggregate gradations to develop Ultra High Performance Concrete (UHPC) specimens.
- Presented research findings at Marshall University ASCE Conference and ACI Convention in San Francisco.

Virginia Military Institute

Tutor

May 2021 - May 2023

Lexington, VA

- Provided one-on-one tutoring in calculus, differential equations, and probability to 15+ students weekly.
- Taught material mechanics and statics concepts to 20+ students weekly in a classroom setting.

Education

Virginia Tech

M.S. in Civil Engineering (Structural Engineering and Materials)

August 2023 - December 2024

Blacksburg, VA

- GPA: 3.64/4.0
- Air Force Institute of Technology Graduate Scholarship Recipient

Virginia Military Institute

B.S. in Civil and Environmental Engineering

August 2019 - May 2023

Lexington, VA

- GPA: 3.80/4.0
- Institute Honors Program Graduate
- Leadership: Tau Beta Pi Engineering Honor Society (Vice President), ASCE Student Chapter
- Four-Year Air Force ROTC Scholarship Recipient

Skills & Certifications

Technical Skills: Structural Analysis, Concrete Design, FEA Modeling, Materials Testing, Composite Materials

Engineering Software: AutoCAD, RISA, MASTAN, MathCAD, Microsoft Excel

Finite Element Analysis: ATENA, Abaqus

Programming: MATLAB, Python, LaTeX, Javascript

Professional: Engineer in Training (EIT) Certification, Secret Security Clearance (Adjudicated January 2022)