ARTHUR AMORIM
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CAREER SUMMARY

Ph. D. student with strong mathematical logic background, working on formal methods research for critical infrastructure security and resilience.

PROFESSIONAL PROFILE

- Experienced in interdisciplinary collaboration, bridging theory and practice to solve complex computational problems.
- Published and presented research in top-tier conferences, demonstrating strong communication and technical writing skills.
- Research-driven problem solver with expertise in formal methods, programming languages, and software verification
- Proficient in Haskell and F*, with hands-on experience in specification and verification of software systems.

WORK EXPERIENCE

Tusculum University, Mathematics Department Greeneville, TN 2021
Undergraduate researcher
- Explored mathematical simulation of SIR infectious spread models using Wolfram Mathematica.

ORISE Omni Alliance Internship, DOE Idaho Falls, ID 2022-2024
STEM intern
- Worked with INL on a Provable Security and Resilience LDRD
- Use Coq theorem prover, along with high level mathematical logic, to prove a system's resilience, as well as formal methods research.
- Reproduce Haskell's functional properties into Rust.
- Presented "Translating functional into imperative programs" poster to INL staff.

Idaho National Laboratory, DOE Idaho Falls, ID 2022- current
Graduate Intern: National & Homeland Security
- Study of functional languages and their applications on a multicore system.
- Research on type-driven systems to prevent code injection.
- Develop DATUM, an approach to mitigate stealthy attacks.
- Retrofit cyber-physical systems to have proof-based resiliency.

EDUCATION

University of Central Florida, Orlando, FL. 2023- current
Ph. D. Computer Science (ongoing) GPA: 3.91
•Formal Methods Research under Dr. Gary Leavens.

Tusculum University, Tusculum, TN 2018–2022
B.S. (Bachelor of Science); Mathematics; Computer science(minor)
Cum GPA 3.81: Magna Cum Laude
•Labry college of Science, Math and Business Outstanding Calculus Student Award
•2019 Division 2 Athletics Director Association Academic Achievement Award.

MILESTONES

• Received grant to attend Oregon Programming Language Summer School (OPLSS'23) 2023
• "Towards Provable Security in Industrial Control Systems Via Dynamic Protocol Attestation" paper accepted at ICSS'24 2024
• "Dynamically checking protocols with DATUM" invited talk accepted at DICE'25 2025
• "Enforcing MAVLink Safety & Security Properties via Refined Multiparty Session Types" paper accepted at NFM'25 2025
• "Automated Reasoning for UAV Safety & Security: The DATUM Protocol Stack" invited talk accepted at HCSS'25 2025