

# HUGH COLEMAN

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## EDUCATION

TEXAS A&M UNIVERSITY

College Station, TX

Ph.D. in Computer Science starting in Fall 2025

TRINITY UNIVERSITY

San Antonio, TX

B.S. in Computer Science

May 2025

Grade: 3.808, Honors Thesis, Dean's List

## AWARDS AND HONORS

Horizon Fellowship, Texas A&M College of Engineering

2025-present

Outstanding Senior Research Award, Trinity University

2025

Dean's Scholarship, Trinity University

2021-present

NSF Student Travel Grant Recipient, IEEE MASS 2024

2024

NTGPA Scholar, GPA Midstream North Texas Scholarship

2022-present

## RESEARCH EXPERIENCE

AIR FORCE RESEARCH LABORATORY

Rome, NY

Advanced Course in Engineering

May 2024 - August 2024

- Worked on a government project integrating Mythic agents into in-house Command and Control (C2) software Rebellion for enhanced UX, deconfliction, and operational diversification.
- Automated C2 payload generation, agent tasking and listener generation.
- Created software to create and post through bot accounts on Mastodon server to serve misinformation for simulated operations.
- Used local LLMs to identify and deploy mass misinformation in simulated operations.
- Developed kinetic drone software for C2, navigation, swarm and ordinance deployment for simulated operations.
- Conducted malware analysis through reverse engineering, static and dynamic analysis on packed malicious software to assess threat behavior and mechanisms.
- Crafted cryptography scheme optimized for over-the-air rekeying.
- Created FPGA hardware PUF for validating devices.

TRINITY UNIVERSITY

San Antonio, TX

Honors Thesis, Department of Computer Science

August 2023 - present

- Conducting thesis research under the supervision of Prof. Sheng Tan, focusing on the intersection of federated learning and vehicular ad hoc networks (VANETs).
- Developed a Dynamic Vehicle Selection and Adaptive Aggregation Asynchronous based Asynchronous Federated Learning scheme to optimize federated learning performance in vehicular networks.
- Presented first-author research poster on federated learning at IEEE MASS 2024 in Seoul, South Korea.

## PROFESSIONAL EXPERIENCE

### TEACHING ASSISTANT

Principles of Theoretical Computer Science, Trinity University

San Antonio, TX  
Fall 2023, Fall 2024

- Held office hours, midterm and final exam review sessions.
- Graded quizzes and homeworks.

### USAA

Software Engineer Intern, Bank

San Antonio, TX  
May 2023 - August 2023

- Developed serverless banking applications using AWS and Terraform.
- Implemented AWS Step Functions state machine to orchestrate account eligibility verification processes on USAA deposit account decisioning.
- Engineered authentication microservice using Terraform to provision AWS infrastructure and develop API for retrieving member identification tokens.
- Implemented Datadog dashboard to measure reliability and cost of AWS banking services.

### RICE UNIVERSITY

OwlSpark Startup Accelerator, Class 9

Houston, TX  
May 2021 - August 2021

- Created a Python application to analyze 6,448 miles of Texas Railroad Commission natural gas pipeline data to identify 353 potential clients for computational fluid dynamics software.
- Presented to Chevron Technology Ventures after pitching at Bayou Startup Showcase.
- Identified key pain points by conducting 29 customer interviews with industry professionals across the industry.

### GATHERX ANALYTICS

Co-Founder and Developer

Houston, TX  
May 2020 - August 2021

- Created web-based product key authentication system for subscription sales and management.
- Led, developed, and managed free trial product verification for a six-month pilot test with operational datasets from potential clients.
- Built test code solution to improve system reliability for critical computational fluid dynamics engine calculations for data analytics platform and deployed to codebase.
- Presented at Rice University Bayou Startup Showcase pitch event.

## PUBLICATIONS

1. **Hugh Coleman**, Sheng Tan, and Zi Wang, "Poster: Dynamic Vehicle Selection and Adaptive Aggregation for Asynchronous Federated Learning Enabled VANET," in *2024 IEEE 21st International Conference on Mobile Ad-Hoc and Smart Systems (MASS)*, IEEE, Sep. 2024, pp. 480–481.

Travel Grant Application - AeroCyber Workshop  
Prescott, Arizona

Recommendation Letter of Support for Mr. Hugh Coleman

I am pleased to support Hugh's application for a travel grant to attend the AeroCyber Workshop. As their research advisor at Texas A&M University, I've had the opportunity to mentor and collaborate closely with Hugh on Digital Twinning projects. He is an extraordinarily motivated student whose participation in this conference will significantly benefit his academic and professional development.

Hugh is not funded and does not have travel money to attend the conference. The Student Travel Grant will help him defray his travel expenses, boarding, and lodging expenses. I am willing to cover the cost-grant differential from other funding sources.

Financing Hugh's trip to the AeroCyber Workshop will benefit him and the broader academic community by encouraging collaboration and knowledge sharing. I heartily endorse Hugh for this travel award and appreciate your consideration of this request. Please do not hesitate to contact me if you need any additional information.

A handwritten signature in cursive script, reading "J A Hamilton, Jr.".

John A. Hamilton, Jr., Ph.D.  
Professor of Computer Science & Engineering  
Director, Texas A&M Cybersecurity Center