

# Trey Tuscai

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## EDUCATION

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**Colby College, Waterville, ME**

Anticipated May 2025

*Elite Private Liberal Arts College*

**Major:** Honors Computer Science with a Concentration in Artificial Intelligence

**GPA:** 3.6 / 4.0

**Relevant Coursework:** Data Structures and Algorithms, Analysis of Algorithms, Data Analysis and Visualization, Programming Languages, Computer Organization, Software Engineering, Neural Networks, Generative AI, Game Design, Linear Algebra

**University of St Andrews, St Andrews, Scotland**

*Study Abroad Fall 2023*

**Relevant Coursework:** Foundations of Computation, The Internet and the Web: Concepts and Programming

## PUBLICATIONS

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[manuscript in preparation] Trey Tuscai, Naser Al Madi. “**Balancing Security and Usability in Eye Movement-Based Authentication on a Smartphone.**” In ACM Symposium on Eye Tracking Research & Applications (ETRA) 2025.

- Developed an affordable and reliable eye-tracking biometric authentication system for iOS devices, focusing on enhancing security, user convenience, and addressing ethical considerations like privacy and bias.

## CAMPUS INVOLVEMENT

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**Colby College Men's Lacrosse**

Sept 2021 - March 2024

- Starting Defense/LSM in highly competitive New England Small College Athletic Conference (NESCAC), which is comprised of sports teams from 11 of America's most selective schools.
- Committed 30+ hours/week in Fall and Spring semesters.

## PROGRAMMING AND TECHNICAL SKILLS

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- Experienced in a wide range of programming languages, including Swift, Java, Python, C, and JS, enabling versatility in developing various software solutions and web applications.
- Adept in iOS development, demonstrated by engineering an iOS eye-tracking biometric authentication system incorporating vector calculations, computer vision, and 3D modeling, as well as the Dowsing social media app with robust architecture, secure authentication, and intuitive UI design.
- Proficient in object-oriented design, software development, distributed systems, advanced algorithms, machine learning, version control, and database modeling.

## KEY PROJECTS

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- Eye-Movement Based Authentication: Engineered a biometric authentication system leveraging eye-tracking technology for iOS.
- Mary Low Coffeehouse Shift Scheduling: Built an efficient scheduling website for staff at Colby College's coffeehouse.
- Dowsing: Designed and developed an innovative water fountain rating app for iOS.

## WORK EXPERIENCE

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**Large Language Model Data Trainer, Outlier AI, Remote**

Oct 2024 - Present

- Selected as an expert in Java for the fine-tuning and enhancement of Large Language Models.
- Applied expertise in software development and AI model training to improve natural language understanding and model accuracy.
- Collaborated with a team to enhance the performance of AI systems through data annotation, coding, and algorithm optimization.

**Coding and Robotics Instructor, STREM HQ, Houston, TX**

June 2024 - July 2024

- Instructed students on the fundamentals of robotics, including assembly and operation of Arduino-based robots.
- Developed and implemented curriculum that combined coding, engineering, and creative design.
- Facilitated hands-on learning experiences, guiding students to apply theoretical knowledge in practical projects.

**iOS Developer, Dowsing, Houston, TX**

Jan 2023 - Mar 2024

- Engineered Dowsing, an innovative water fountain rating app, as the sole creator and developer.
- Developed complete app architecture, user interface, and functionality using Swift, Javascript, UIKit, and MapKit.
- Designed systems for account configuration, user ratings, user reviews, and photo-sharing within Dowsing app, highlighting proficiency in data management and app scalability.
- Leveraged user feedback, leading to significant improvements in app features and overall usability.
- Published app on the Apple App Store, achieving ~150 user downloads.