EMANUELE BOSSI

3700 Willow Creek Rd, Prescott, AZ 86301• (928) 458-9464 • emab03@gmail.com • Personal Website

EDUCATION

Embry-Riddle Aeronautical University Prescott, AZ
B.S., Software Engineering Expected May 2026
Minor: Mathematics
Undergraduate Research Scholar Candidate
GPA: 4.0/4.0

Embry-Riddle Aeronautical University Prescott, AZ
B.S., Data Science Expected May 2026
Minor: Mathematics
Undergraduate Research Scholar Candidate
GPA: 4.0/4.0

RESEARCH EXPERIENCE

Purdue University West Lafayette, IN
Incoming Undergraduate Research Fellow May 2025 – August 2025

Sensor-Scheduling for Cognitive State Estimation During Automated Driving
Jain Research Lab, Department of Mechanical Engineering
Advisors: Neera Jain and Sibibalan Jeevanandam

- Will develop algorithms to estimate cognitive states (e.g., trust, mental workload) in automated driving using behavioral, physiological, and self-reported data
- Will apply machine learning, Gauss-Markov theorem and feedback control principles to model and improve human-machine collaboration, with experience in driving simulation, human subject experiments, and state estimation algorithm implementation
- Will present at Purdue Summer Symposium 2025
- Funded by Engineering Undergraduate Research Office (EURO) at Purdue

Embry-Riddle Aeronautical University Prescott, AZ
Undergraduate Research Fellow, Undergraduate Research Institute August 2024 – Present

Automated Jetways February 2025 – Present
College of Engineering and School of Business
Advisors: Elliott Bryner and Jules O Yimga

- Analyzing automation potential for jetways to improve boarding efficiency and safety
- Evaluating business and engineering factors, including airframe compatibility, automation technologies, and cost estimation
- Funded by Boeing

Measuring Human Trust in AI in Safety-Critical Systems August 2024 – Present
College of Engineering and College of Aviation
Advisors: Timothy King and Stacey McIntire

- Conducting research on human trust in AI in safety-critical systems, focusing on transparency, control, and error rates
- Developing an experimental study to assess AI's impact on decision-making in aviation safety
- Funded by Embry-Riddle Aeronautical University CBSI Philanthropy Council

AI-Driven Optimization of the Actual Take-Off Weight (ATOW) August 2024 – Present
Department of Mathematics
Advisor: Abd AlRahman Rasheed AlMomani

- Developing AI-driven models to optimize aircraft take-off weight for improved fuel efficiency and reduced emissions
- Implementing machine learning techniques for predictive analysis and operational optimization
- Ranked in the top 25 out of 132 teams at the PRC Data Challenge organized by EUROCONTROL
- Funded by Embry-Riddle Aeronautical University Undergraduate Research Institute

AI-Based Phishing Countermeasures August 2024 – April 2025
Department of Computer, Electrical, and Software Engineering
Advisor: Sameer Abufardeh

- Conducted a public awareness survey to analyze people's understanding of phishing and its risks
- Trained machine learning models on historical and contemporary phishing datasets to evaluate their adaptability to modern threats
- Presented at the National Conference on Undergraduate Research (NCUR) 2025
- Funded by Embry-Riddle Aeronautical University CBSI Philanthropy Council

Dimensionality Reduction in Sentiment Analysis August 2024 – December 2024
Department of Mathematics
Advisor: Faisal Ahmed

- Investigated the impact of feature extraction and dimensionality reduction on sentiment analysis performance
- Implemented Bag of Words, TF-IDF, and Chi-Square techniques to optimize machine learning models
- Achieved performance comparable to BERT with reduced training and inference times
- Published in Lecture Notes in Networks and Systems; will present at the Intelligent Systems Conference (IntelliSys) 2025
- Funded by Embry-Riddle Aeronautical University, College of Arts & Sciences

TEACHING EXPERIENCE

Embry-Riddle Aeronautical University Prescott, AZ
Teaching Assistant, Software Engineering Practices January 2025 - Present

- Developing interactive quizzes to assess students' understanding of the course material, assisting students with the semester-long project and grading project's milestones

Embry-Riddle Aeronautical University Prescott, AZ
Teaching Assistant, Machine Learning & Big Data Analysis August 2024 - Present

- Developing new 400-level machine learning course structure (lectures, quizzes, and exams), hosting review sessions, grading assignment and presenting material to 120 students across 4 sections

West Virginia University Institute of Technology Beckley, WV
Teaching Assistant, Computer Science January 2023 – July 2023

- Developed course material and taught middle school students Computer Science core concepts covering various topics such as problem solving, web developing and machine learning

PUBLICATIONS

- Bossi, E., Ahmed, F. "Enhancing Sentiment Analysis with Feature Extraction and Dimensionality Reduction in Traditional Machine Learning Models", Lecture Notes in Networks and Systems, 2025. In press.

PRESENTATIONS

- "*Dimensionality Reduction: A Key to Optimizing Sentiment Analysis Models*," Accepted for Presentation at Intelligent Systems Conference (IntelliSys). Oral Presentation. Amsterdam, NL, August 2025.
- "*Don't Bother the Driver: Sensor-Scheduling for Cognitive State Estimation During Automated Driving*," will present at Purdue University Summer Research Symposium. Poster and Oral Presentation. West Lafayette, IN, July 2025.
- "*Measuring Human Trust in Artificial Intelligence in Safety-Critical Systems*," Arizona Space Grant Symposium. Oral Presentation. Scottsdale, AZ, April 2025.
- "*AI-Driven Smart Agriculture for Climate Resilience*," Global Stage of Invent For The Planet 2025. Poster and Oral Presentation. College Station, TX, April 2025.
- "*Phishing in the Digital Age: Surveying Public Awareness and Leveraging AI for Defense*," National Conference on Undergraduate Research (NCUR). Oral Presentation. Pittsburgh, PA, April 2025.
- "*AI-Driven Optimization of the Actual Takeoff Weight (ATOW)*," Prescott Regional SciTech Fest. Poster Presentation. Prescott, AZ, March 2024.

HONORS & AWARDS

Invent for the Planet 2025 – Engineering Challenge Global-Stage Finalist 2025
Department of Computer Science Outstanding Student Award 2023

GRANTS & FELLOWSHIPS

Purdue University Summer Undergraduate Research Fellowship ($10,000) 2025
Embry-Riddle Undergraduate Research Institute Eagle Prize Award ($6,000) 2024-2025
Embry-Riddle CBSI Philanthropy Council Award ($8,900) 2023-2025
Embry-Riddle Soccer Athletic Grant ($60,000) 2023-2026
Embry-Riddle Transfer Scholarship Award ($30,000) 2023-2026

PROFESSIONAL EXPERIENCE

Poppin' Jobs Remote
Incoming Junior Backend Developer May 2025 –

- Will develop and maintain backend services using C# and .NET, with a focus on optimizing and ensuring code quality
- Will integrate and optimize RESTful APIs to enhance application functionality and improve performance for both web and mobile platforms
- Will collaborate with the development team to manage SQL Server databases and implement Azure cloud solutions for scalability and reliability, while contributing to frontend tasks as needed

True Course Simulations Prescott, AZ
Data Scientist Intern May 2024 – August 2024

- Developed machine learning models to optimize pilot training flight simulations, reducing data retrieval times by 70%
- Analyzed large datasets using Python and MySQL to extract actionable insights, improving decision-making efficiency
- Collaborated with cross-functional teams to design a predictive model for pilot aptitude, increasing program completion rates by 35%

Jointek Srl Somma Lombardo, IT
Data Scientist Intern May 2023 – August 2023

- Processed and analyzed historical sales and procurement data using SQL and Python, enhancing data retrieval efficiency by 30%
- Designed predictive analytics models for business operations, improving decision making
- Created visual reports and dashboards in MS Power BI, improving stakeholder engagement and seniority business awareness

LEADERSHIP & OUTREACH

Undergraduate Research Team Leader 2024-2026
Embry-Riddle Aeronautical University Men's Soccer Varsity Vice-Captain 2025-2026

PROFESSIONAL AFFILIATIONS

IEEE Eta Kappa Nu Honor Society	2025 - Present
Tau Beta Pi Engineering Honor Society	2024 - Present
Phi Kappa Phi Honor Society	2024 - Present
National Society of Leadership and Success Honor Society	2024 - Present