EMANUELE BOSSI

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EDUCATION

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

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

RESEARCH EXPERIENCE

Purdue University West Lafayette, IN
Summer Undergraduate Research Fellowship May 2025 – August 2025

Sensor-Scheduling for Cognitive State Estimation During Automated Driving
Jain Research Lab
Advisors: Neera Jain and Sibibalan Jeevanandam

- Developing algorithms to estimate cognitive states (e.g., trust, mental workload) in automated driving using behavioral, physiological, and self-reported data
- Applying 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
- Presented at Purdue Summer Symposium 2025
- Funded by Engineering Undergraduate Research Office (EURO) at Purdue

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

Measuring Human Trust in AI in Safety-Critical Systems
Department of Aerospace Engineering
Advisor: Hadi Ali

- 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)
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

Automated Jetways
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

AI-Based Phishing Countermeasures
Department of Computer, Electrical, and Software Engineering
Advisor: Sameer Abufardeh

- Conducting a public awareness survey to analyze people's understanding of phishing and its risks
- Training 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
Department of Mathematics
Advisor: Faisal Ahmed

- Investigating the impact of feature extraction and dimensionality reduction on sentiment analysis performance
- Implementing 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; presented 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

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

Embry-Riddle Aeronautical University Prescott, AZ

Teaching Assistant, Machine Learning & Big Data Analysis August 2024 - Present

- Developed new 400-level machine learning course structure (lectures, quizzes, and exams), hosted review sessions, graded assignment and presented 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.

PRESENTATIONS

- "Dimensionality Reduction: A Key to Optimizing Sentiment Analysis Models," Intelligent Systems Conference (IntelliSys). Oral Presentation. Amsterdam, NL, August 2025.
- "Don't Bother the Driver: Sensor-Scheduling for Cognitive State Estimation During Automated Driving," Purdue University Summer Research Symposium. Oral Presentation. West Lafayette, IN, July 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.
- "Measuring Human Trust in AI in Safety Critical Systems," Embry-Riddle Discovery Day. Poster Presentation. Prescott, AZ, April 2024.
- "AI-Driven Optimization of the Actual Takeoff Weight (ATOW)," Embry-Riddle Discovery Day. Poster Presentation. Prescott, AZ, April 2024.
- "AI-Based Phishing Countermeasures," Embry-Riddle Discovery Day. Poster Presentation. Prescott, AZ, April 2024.
- "AI-Driven Optimization of the Actual Takeoff Weight (ATOW)," Prescott Regional SciTech Fest. Poster Presentation. Prescott, AZ, March 2024.
- "Measuring Human Trust in AI in Safety Critical Systems," Embry-Riddle Career Fair Research Symposium. Poster Presentation. Prescott, AZ, February 2024.

- "AI-Driven Optimization of the Actual Takeoff Weight (ATOW)," Embry-Riddle Career Fair Research Symposium. Poster Presentation. Prescott, AZ, February 2024.
- "AI-Based Phishing Countermeasures," Embry-Riddle Career Fair Research Symposium. Poster Presentation. Prescott, AZ, October 2024.

HONORS & AWARDS

Invent for the Planet 2025 – Engineering Challenge World-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 Transfer Scholarship Award ($30,000)	2023-2026
Embry-Riddle Soccer Athletic Grant ($60,000)	2023-2026

LEADERSHIP & OUTREACH

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

PROFESSIONAL AFFILIATIONS

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

PROFESSIONAL EXPERIENCE

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