**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

**REFERENCES**

Abd AlRahman Rasheed AlMomani

Embry-Riddle Aeronautical University

Assistant Professor of Data Science and Mathematics and Data Science Program Director, Mathematics Department, College of Arts & Sciences

Research advisor

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First name Last name

University or Company

Job Title, Department if applicable

Relationship (e.g. advisor, supervisor)

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Christopher Warner

Embry-Riddle Aeronautical University

Instructor, Business School Department, College of Business, Security & Intelligence

Teaching supervisor

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