Joey Paul E. Haynes

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Education

University of Texas at Austin, Austin, TX — August 2024 - Present
Master of Science (M.S.) in Computer Science — Graduation: May 2026
Coursework: Planning, Search, and Reasoning Under Uncertainty
Cumulative GPA: 4.00/4.00

Southern New Hampshire University, Manchester, NH — January 2021 - June 2024
Bachelor of Science (B.S.) with Honors — Graduation: June 2024
Major in Computer Science, Minor in Applied Mathematics
Cumulative GPA: 4.00/4.00

Conference Proceedings

J. P. Haynes, M. J. Bhalerao, W. T. Honeycutt, J. K. Allen, and F. Mistree. *Predictive Modeling for Public Policy Design: The Impact of Artificial Lights at Night (ALAN) on Bird Strikes.* ASME Computers and Information in Engineering Conference, DETC24-143780, Washington, D.C., August 2024

Journal Articles

J. P. Haynes, M. J. Bhalerao, W. T. Honeycutt, J. K. Allen, and F. Mistree. *Predicting Bird Strike Occurrences through a Model-Based Cyber-Physical-Social System Design.* [**Under Review**]. Submitted to ASME Journal of Computing and Information Science in Engineering (JCISE)

Invited Talks

Predictive Modeling for Public Policy Design: The Impact of Artificial Lights at Night (ALAN) on Bird Strikes. 42nd ASME/AIAA Regional Symposium, Oral Roberts University, Tulsa, OK, April 2024

Predicting Bird Strike Occurrences through a Model-Based Cyber-Physical-Social System Design. Webinar given to the SRL@OU Conversations Series, April 2024

Oral Presentations

Predictive Modeling for Public Policy Design: The Impact of Artificial Lights at Night (ALAN) on Bird Strikes. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Washington, D.C., August 2024 (IDETC '24)

Adaptive Manufacturing Systems: Leveraging Predictive Modeling and Cyber-Physical-Social Systems for Real-Time Adaptation. International Design Engineering Technical Conferences and Computers and Information in Engineering Conference, Washington, D.C., August 2024 (IDETC '24)

Experience

Systems Realization Laboratory at OU, Norman, OK — August 2023-Present
Remote Research Intern advised by Dr. Janet K. Allen and Dr. Farrokh Mistree at the University of Oklahoma

- Collaborated in a team of researchers as lead author for the ALAN project, investigating the impact of artificial lights at night (ALAN) on bird strike occurrences
- Helped define the research problem by identifying knowledge gaps in the existing work, illustrating a novel method and application of cyber-physical-social system (CPSS) modeling
- Conducted exploratory data analysis (EDA) using GIS tools, integrating data including the FAA wildlife strike database, BirdCast migration forecasts, and light pollution rasters
- Developed a spatiotemporal predictive model using decision tree regression with GIS data, achieving an R-squared value of 0.78
- Applied k-fold cross-validation and hyperparameter tuning to optimize model performance, achieving an average absolute error of 0.95 strikes
- Winner of the NSF/ASME student design essay contest for an essay on adaptive manufacturing systems using predictive modeling and cyber-physical-social systems (CPSS)
- Authored 2 first-author publications (IDETC, JCISE) and presented 4 technical presentations as part of my work in this lab

Walmart, Yukon, OK — June 2020 - Present
Associate

- Balanced a customer-facing role throughout undergraduate studies, developing strong time management and leadership skills

- Trained and mentored over 20 employees, enhancing team efficiency and communication
- Managed merchandise presentation and facility maintenance, contributing to a 5.5% YoY sales increase in a $100M/year facility

Projects

Design Messaging Platform — jpthefish.com December 2022 - Present

- Deployed a full-stack web application with daily traffic using React.js, Firebase, and SQL
- Created a messaging platform with sign-in authentication, back-end security logic, and word filtering
- Designed and implemented a responsive UX design with careful attention to visual accessibility

Gracioso Salvare Analytics Dashboard with Dr. Sherri Maciosek February 2023

- Developed a full-stack analytics dashboard using Python, MongoDB, and Dash framework
- Implemented interactive data visualization components, including tables, charts, and geolocation maps, enabling stakeholders to filter and analyze animal shelter data by relevant criteria

Honors and Awards

NSF/ASME Student Design Essay Competition Award – $1,500 June 2024
Graduation with Honors and Distinction at SNHU (Summa Cum Laude) June 2024
Alpha Sigma Lambda December 2023

Service and Leadership Roles

Member, National Society of Leadership and Success (NSLS) March 2024 - Present
Lab Volunteer, Systems Realization Laboratory at OU August 2023 - Present
Training Supervisor, Walmart Supercenter February 2022 - Present
Volunteer Contributor, Wikimedia Foundation May 2020 - January 2022

Technical Skills

Languages: Python, SQL, R, Java, C/C++, MATLAB, JavaScript
Data technology: PostgreSQL, MySQL, MongoDB, Firebase/Firestore
Tools and frameworks: Git, AWS, Docker, OpenGL, React, Tableau

Certifications

Google Advanced Data Analytics Certificate, Coursera Inc. December 2023
People and Business Leadership Certificate, Bellevue University March 2021

Languages and Other Skills

Intermediate Spanish (B1) and French (B2) Language Fluency
Classical and Jazz Piano

References

Dr. Farrokh Mistree
Professor and L.A. Comp Chair at OU, **Email:** farrokh.mistree@ou.edu, **Tel:** (404) 502-9086

Dr. Janet K. Allen
Professor and John and Mary Moore Chair at OU, **Email:** janet.allen@ou.edu, **Tel:** (405) 550-3969

Dr. Sherri Maciosek
Adjunct Professor at SNHU, **Email:** s.maciosek@snhu.edu, **Tel:** (715) 479-3408