

Joey Paul Eli Haynes

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Education	<p>University of Texas at Austin, Austin, TX Master of Science (M.S.) in Computer Science Coursework: Planning, Search, and Reasoning Under Uncertainty Cumulative GPA: 4.00/4.00</p> <p>Southern New Hampshire University, Manchester, NH Bachelor of Science (B.S.) with Honors Major in Computer Science, Minor in Applied Mathematics Cumulative GPA: 4.00/4.00</p>	<p>August 2024 - Present Graduation: December 2026</p> <p>January 2021 - June 2024 Graduation: June 2024</p>
Research Interests	Predictive Modeling, Bayesian Estimation for Mobile Robots, Cyber-Physical Systems (CPS), Game Theory, Sustainable Development, Probabilistic Programming, Computer Perceptions	
Conference Proceedings	J. P. Haynes , M. J. Bhalerao, W. T. Honeycutt, J. K. Allen, and F. Mistree. <i>Predictive Modeling for Public Policy Design: The Impact of Artificial Lights at Night (ALAN) on Bird Strikes</i> . ASME International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, DETC2024-143780, Washington, D.C., August 2024.	
Journal Articles	J. P. Haynes , M. J. Bhalerao, W. T. Honeycutt, J. K. Allen, and F. Mistree. <i>Engineering Informatics for Aviation Safety: Machine Learning-Based Prediction of Bird Strikes Using a Model-Based CPSS Design</i> . <u>Submitted</u> to ASME Journal of Computing and Information Science in Engineering (JCISE).	
Invited Talks	<p><i>Predictive Modeling for Public Policy Design: The Impact of Artificial Lights at Night (ALAN) on Bird Strikes</i>. 42nd ASME/AIAA Regional Symposium, Oral Roberts University, Tulsa, OK, April 2024.</p> <p><i>Engineering Informatics for Aviation Safety: Machine Learning-Based Prediction of Bird Strikes Using a Model-Based CPSS Design</i>. Webinar given to the SRL@OU Conversations Series, April 2024.</p>	
Oral Presentations	<p><i>Predictive Modeling for Public Policy Design: The Impact of Artificial Lights at Night (ALAN) on Bird Strikes</i>. [Co-presented with Mayank Bhalerao]. ASME Computers and Information in Engineering Conference (CIE), Washington, D.C., August 2024.</p> <p><i>Adaptive Manufacturing Systems: Leveraging Predictive Modeling and Cyber-Physical-Social Systems for Real-Time Adaptation</i>. [Poster]. NSF/ASME Student Design Essay Competition, ASME Computers and Information in Engineering Conference (CIE), Washington, D.C., August 2024.</p>	
Experience	<p>Systems Realization Laboratory at OU, Norman, OK Remote Research Intern advised by Dr. Janet K. Allen and Dr. Farrokh Mistree at the University of Oklahoma</p> <ul style="list-style-type: none">• 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 method of predictive modeling informed by cyber-physical-social systems (CPSS).• 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 random forest regression with GIS data, achieving an R-squared value of 0.80.• Applied k-fold cross-validation and hyperparameter tuning to optimize model performance, achieving an average absolute error of 0.87 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 at 4 technical sessions as part of my work in this lab.	August 2023-Present

	Walmart, Yukon, OK Sales Associate <ul style="list-style-type: none"> 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. 	June 2020 - Present
Selected Projects	Portfolio Website — jpthefish.com <ul style="list-style-type: none"> Deployed a full-stack web application with daily traffic using React.js, Firebase, and SQL. Created a chatroom with sign-in authentication, back-end security logic, and word filtering. Designed and implemented a responsive UX design with careful attention to visual accessibility. Replication of 3D Scenes in OpenGL with Ronald Bishop <ul style="list-style-type: none"> Developed an interactive 3D graphics scene using OpenGL to replicate real-world 2D images into a navigable virtual environment. Modularized the shaders for vertex and fragment processing, optimizing the rendering process and enhancing the realism of textures, lighting, and material properties. Explored the applicability of graphics pipeline techniques to computer vision by simulating an example of object recognition and spatial analysis within a controlled 3D environment. Grazioso Salvare Analytics Dashboard with Dr. Sherri Maciosek <ul style="list-style-type: none"> Developed an analytics dashboard for an Austin-based rescue-animal company using Python, MongoDB, and the 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. 	December 2022 - Present Spring 2024 Spring 2023
Honors and Awards	NSF/ASME Student Design Essay Competition Award – \$1,500 Graduation with Honors and Distinction at SNHU (Summa Cum Laude) Alpha Sigma Lambda Guild Education Assistance (Work-Based Tuition Grant) – \$14,645.61	June 2024 May 2024 November 2023 March 2021 - June 2024
Service and Organizations	<i>Member</i> , Association for Computing Machinery (ACM) <i>Member</i> , American Society of Mechanical Engineers (ASME) <i>Member</i> , National Society of Leadership and Success (NSLS) <i>Mentor</i> , Multicultural STEM Community Club at SNHU <i>Volunteer Contributor</i> , Wikimedia Foundation	September 2024 - Present July 2024 - Present March 2024 - Present April 2024 - May 2024 May 2020 - January 2022
Technical Skills	Languages: Python, SQL, 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. People and Business Leadership Certificate, Bellevue University GED Mathematics Credit (top 1-8% of high school graduates, age 16)	January 2024 March 2021 December 2018
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	