**EDUCATION**

**2026** **B.S. Computer Science (anticipated)**  
 *University of Tennessee Knoxville, Knoxville, TN*

*Senior Project:* “Scaling Thermal Behavioral Ecology: DeepLabCut Machine Learning Models for Detecting Avian Thermoregulatory Responses”

*Relevant Coursework:* Data Structures and Algorithms, Operating Systems, Computer Systems Programming, Automata and Formal Languages, Algorithm Analysis, Artificial Intelligence, Machine Learning, Database, Software Engineering, Evolutionary Biology, Animal Behavior

**2021** **Study Abroad, Verto Education**  
 *Richard Bland College, London, UK*

*Abroad Project:* Future Algorithms For Program Optimization in Applications

*Relevant Coursework:* Computational Modeling, Data Structures and algorithms, Computer Systems, Program Optimization, Applied Mathematics,

**Posters**

**2025** **Taylor, S,** Zuluaga, J.D., & Derryberry, E. P. “Scaling Thermal Behavioral Ecology: DeepLabCut Machine Learning Models for Detecting Avian Thermoregulatory Responses” Southeastern Conference For Animal Behavior; Knoxville, TN.

**2023** **Taylor, S.**. “Designing a Two-Pass Assembler for a Virtual Machine in C#” The Exhibition of Undergraduate Research and Creative Achievement; Knoxville, TN.

**2021** **Taylor, S.**. “Future Algorithms for Program Optimization in Applications,” Conference on Computer Science, Engineering and Applications; London, UK.

**Invited Talks, seminars, workshops**

**2024** Guest Speaker: *Pathways to STEM for Black Youth*, Community Workshop, Memphis, TN.

Guest Speaker: *Exploring Career Paths Through Art and Design*, Community Workshop, Memphis, TN

**teaching, mentoring, and outreach**

**Kirby High, Middle & Elementary Schools, Memphis, TN**  
*Digital Art Teacher*, June 2023 - August 2023

* Led a summer class on digital art and 3D modeling
* Taught students to use tools like AutoCAD, animation software, and game development platforms
* Guided hands-on projects to build creative and technical skills
* Encouraged exploration of design, storytelling, and technology in art

*Tutor,* May 2018 - July 2023

* Tutored K–12 students in math and computer literacy
* Provided one-on-one and small group academic support
* Fostered student understanding through finding creative ways to convey lessons
* Assisted teachers with classroom management and lesson delivery

**University of Tennessee Knoxville***Tutor,* September 2022 - April 2023

* Supported undergraduates in learning calculus topics and techniques
* Explained advanced concepts in clear, approachable ways
* Offered individualized help to strengthen problem-solving skills
* Encouraged student confidence and success in coursework

**mentoring**

**Digital Art Mentor**  
September 2023 - Present

* Online mentor for Black middle and high school students in Memphis exploring 3D modeling, animation, and game development
* Introduced students to tools such as Blender, Maya, and Unity, guiding them in building beginner-friendly creative projects
* Provided feedback on artwork and projects, offered portfolio advice, and discussed career pathways in animation, design, and research

**outreach**

**2025** Member & Event Organizer, Computational Biology Club, University of Tennessee, Knoxville  
 Volunteer & Contributor, Naturalist Club, University of Tennessee, Knoxville

Volunteer, UT Gardens, University of Tennessee Knoxville

**2024** Member, Phoenix Literary & Arts Magazine, University of Tennessee, Knoxville

Exhibitor, Surrealist Show, Phoenix Literary & Arts Magazine

Member, Computational Biology Club, University of Tennessee, Knoxville

Volunteer, Naturalist Club, University of Tennessee

**2023** Member & Contributor, Machine Learning Student Organization, University of Tennessee, Knoxville

Volunteer, UT Gardens, University of Tennessee, Knoxville **experience**

**‘17-’19** Ronald McDonald House, Memphis, TN

**‘16-’17** Lewisburg Primary School, MS

**Experience**

**research**

**Derryberry Lab, University of Tennessee, Knoxville***Undergraduate Research Assistant*, March 2025-Present

* Leading a project to create a machine learning model for detecting thermoregulatory behaviors in Zebra Finches (*Taeniopygia guttata*)
* Developing and validating machine learning pipelines using DeepLabCut and SimBA, with integration of FLIR thermal imaging and RGB video data
* Establishing standardized protocols for behavior scoring and model evaluation, including the use of pose-estimation tracking, feature extraction, and classification workflows
* Assisting with captive Zebra Finch care, including feeding and environmental monitoring for experiment conditions
* Learning to collect, annotate, and process behavioral datasets for machine learning workflows
* In collaboration with Elizabeth Derryberry and Juan Zuluaga

*Undergraduate Programmer, August* 2025-Present

* Assisting with education research through the development of *Fowl Heat,* an educational roguelike designed to translate avian thermoregulation research into interactive gameplay
* Contributing to the design and implementation of gameplay systems in Unity, including interactions, environmental challenges, and climate-based scenarios
* Assisting with asset integration and user-experience testing to ensure accessibility

**photography**

**2024** Promotional Photography, Knoxville Zoo

*Graduation Portraits, Briana Carter*

*Naturalist Club, UTK*

**2023** Memphis Brooks Museum of Art

Student Headshots, Kirby Middle School

**2021** Thumbnail Photography, “Anton” YouTube Channel

Music Video, Independent Artists, Memphis, TN

Ronald McDonald House, Memphis, TN

**Freelance**

*Graphic Designer, 2021*-Present

* Created posters, PowerPoints, logos, clothing designs, and thumbnails for content creators and business students at UTK
* Worked on projects for both print and digital use, focusing on clear and vibrant designs
* Helped clients develop ideas, made revisions based on feedback, and delivered finished products on time

*3D Artist, 2021*-Present

* Created and sculpted 3D models of characters, environments, assets, logos, and animations for diverse media, including short films, videos, and games
* Delivered customized designs for individual clients and organizations, adapting style and technical approach to match project needs
* Learned to optimize models for different platforms and workflows, ensuring both visual quality and efficient performance
* Collaborated with clients through concept development, revisions, and final delivery, maintaining clear communication and deadlines

**projects**

**2025 – In Progress**  
 UT Herbarium App – Collaborating with the UT Herbarium on a proposed mobile app for plant collection and nomenclature management. Planned features include offline data entry, photo integration, GPS tagging, and a searchable catalogue linked to Tropicos and POWO databases

**2024**  
 Hybrid Encryption System (C#) – Developed a secure client–server system implementing AES- CBC, RSA-OAEP, and HMAC-SHA256 with encryption/decryption workflows and authentication protocols  
 Two-Pass Assembler for a Virtual Machine (C#) – Directed the design and implementation of an assembler to parse and translate assembly into machine code, including label resolution, pseudo-instruction expansion, and error handling

**2023–2024**  
 Note-Taking Application (C++) – Led development of a cross-platform application, applying object-oriented design and memory management to build efficient data structures and persistent storage

**2023**  
 Behavior Classification System for Ant NPCs (Game Development) – Implemented AI-driven system to detect ant behaviors and evaluate their responses to player activity using state-based logic and behavior trees to model foraging, exploration, and group interaction dynamics

**professional**

**Sony Santa Monica Studio, Santa Monica, CA (Remote)***3D Storyboard Artist,* May 2024-Present

* Translated concepts from 2D storyboard artists into 3D environments, characters, and sequences for AAA game production
* Maintained communication with programmers and quality assurance testers to gather feedback on functionality, pacing, and technical feasibility
* Learned to balance artistic vision with performance requirements in large-scale production pipelines, ensuring assets supported both storytelling and gameplay goals

**Fusion Studios, Los Angeles, CA (Remote)***Game Development Intern,* October 2023-March 2024

* Created immersive 3D environments in Blender, focusing on visual storytelling
* Collaborated with a team of developers and artists to design and refine 3D environments in Blender
* Coordinated asset creation, level design, and camera systems to ensure clear communication between programmers and artists

**Memphis Light, Gas, and Water***Engineering Intern,* August 2017- November 2021

* Drafted and digitized municipal water distribution system maps using AutoCAD, improving the accuracy of infrastructure records
* Contributed to projects that supported sustainable water management and long-term planning for urban communities
* Gained experience linking utility design with environmental considerations such as watershed flow, distribution efficiency, and public access to reliable water resources
* Learned how urban water systems interact with natural landscapes and how infrastructure decisions can shape environmental outcomes

**Skills**

* **Programming & Data Analysis:** R (ggplot2, lme4) — multivariate statistics, visualization, mixed-effects modeling; Python (NumPy, pandas, Matplotlib, scikit-learn) — data wrangling, exploratory analysis, statistical testing
* **Machine Learning & Modeling:** Python (TensorFlow, PyTorch) — neural networks for pose estimation and behavior classification; DeepLabCut & SimBA — automated detection of thermoregulatory behaviors; C# — hybrid encryption systems (AES–CBC, RSA–OAEP, HMAC–SHA256) for secure communication; R — AIC-based model selection, frequentist analysis
* **Systems & Performance Programming:** C & C++ — cross-platform applications (OOP, memory management), data structures; C# — two-pass assembler for a virtual machine (label resolution, pseudo-instruction expansion, error handling); Rust, Java, and C — systems programming, algorithm analysis, compiler construction, software optimization
* **Web & Full-Stack Development:** JavaScript, HTML/CSS, React, Node.js — interactive applications, research tools, and scientific visualization with integrated front-end and back-end logic
* **Databases, Platforms & Tools:** SQL — database design and querying; Git & Linux — version control, shell scripting, collaborative workflows; Slurm — high-performance computing job management; ArcGIS (spatial analysis), ImageJ (image quantification), JWatcher (behavioral coding), FLIR Thermal Imaging (environmental monitoring)
* **Physiology & Imaging:** FLIR Studio — collection and analysis of thermal video; Expedata — respirometry and physiology data collection and interpretation
* **3D Modeling & Asset Creation:** Blender, Maya, AutoCAD, Nomad Sculpt — designed characters, environments, and assets for games, films, and educational media; experience with topology, UV mapping, and texture workflows
* **Animation & Visualization:** Created 2D/3D animations and cinematic sequences to support storytelling and research communication; implemented dynamic camera systems in Unity and Unreal Engine
* **Game Development Integration:** Unity, Unreal Engine, Godot, Bitsy — integrated 3D models, environments, and assets into interactive projects; optimized models for performance across platforms
* **Graphic Design & Media:** Adobe Photoshop, Illustrator — designed posters, logos, clothing graphics, presentations, and promotional material for research, content creators, and organizations
* **Applied Design Work:** Produced 3D educational models, mapped municipal water lines with AutoCAD at Memphis Light, Gas & Water, and developed visual assets for AAA and indie games
* **Collaboration & Research:** Strong communication in multi-disciplinary teams across computer science, ecology, and design; experience coordinating with undergraduate students on research and creative projects; hands-on experience with captive Zebra Finch care (feeding, monitoring, experimental conditions); trained in collecting, annotating, and processing behavioral datasets for machine learning

**workshops and training**

**2025** Seminar: Power System Resilience via Ecological Ecosystem Models, Dr. Hao Huang, University of Tennessee, Knoxville

Workshop: *Introduction to R and RStudio*, Derryberry Lab, University of Tennessee, Knoxville

Workshop: *Building a Strong CV for Research Careers*, Derryberry Lab, University of Tennessee, Knoxville

AI Fireside Chat**: Environment, Energy, and Our Digital Footprint** — UTK Office of Innovative Technologies

**2024** Workshop: *Spring 2024 Bioinformatics Workshop Series* (Git, Project Organization & Data Management, Slurm, GPU Computing), Office of Innovative Technologies, University of Tennessee Knoxville

Symposium: *AI Across Tennessee Symposium 2024*, University of Tennessee Knoxville & Tennessee Tech

**2023** *Tennessee Trans Wellness Workshop) — organized by the Campaign for Southern Equality, Inclusion Tennessee, and OUTMemphis*

*Seminar, BlackInCompBio Seminar Series, Black Women in Computational Biology Network*