

F25.036 3D Digitization of Hominin Fossil Casts for the Creation of a Virtual Lab

Overview

The Biological Anthropology Teaching (BAT) Lab houses an extensive collection of hominin fossil casts. To enhance accessibility for students and replicating in-person lab experiences, the BAT lab is creating a 3D digital database of the hominin fossils. Students will interact with virtual models, turning them, zooming in on points of interest and noting surface details with informative annotation. Students will use digital models for review, special assignments, or even as a way to virtually take a specimen home for further study, something not possible with real casts.

To complete this project, the BAT lab is looking for a student intern to assist in the digitization of our extensive hominin fossil cast collection. This internship opportunity provides a unique chance to contribute to the preservation and accessibility of crucial fossil casts in the field of paleoanthropology. With the close assistance of the faculty mentor, and in collaboration with the Digital Archeology Laboratory team, the selected intern will digitize our hominin fossil cast collection using advanced digitization techniques, such as 3D scanning and photogrammetry, to capture accurate and detailed representations of each fossil cast. The intern will organize, annotate, and make the digital database accessible online. The resulting digital collection will be utilized for student research and educational purposes, including the creation of a virtual lab.

What the student will DO and LEARN

The student intern will gain hands-on experience on how to: 1) conduct high-quality 3D scanning and modeling of hominin fossil casts, 2) utilize photogrammetry and other digitization techniques to capture detailed data, 3) process and analyze digitized data to ensure accuracy and completeness, and 4) design an accessible and informational database of digital hominin fossils from around the world and dating as far back as 7 million years old.

The student intern will also develop the following valuable career-readiness skills: 1) attention to detail to ensure authenticity in the digital models, 2) problem-solving, such as handling delicate fossils, optimizing scanning settings, or resolving technical issues, 3) team work and collaboration by working effectively with biological anthropologists, archeologists, and digital experts, 4) data analysis and processing of the 3D models, 5) communication skills by effectively conveying complex information about the digitization process and the resulting 3D models, and 6) interdisciplinary knowledge to develop a deeper understanding of paleoanthropology, biological anthropology, and the cultural context surrounding hominin fossils through hands-on digitization experience. Overall, engaging in the 3D digitization of hominin fossils will equip the student intern with a unique skill set that combines technical expertise, collaboration, and a deep understanding of the scientific and cultural aspects of paleoanthropology.

Additional Benefits

Enhanced Professional Development:

The internship provides an avenue for gaining additional proficiency in laboratory environments, with transferrable skills applicable to 3D digitization techniques, data entry and management in various fields, including archaeology, cultural heritage preservation, forensic, and healthcare industry among others.

Long-Term Project Involvement:

Aligned with overarching project objectives, the student intern will actively contribute to the establishment of a digital laboratory dedicated to teaching purposes. This involvement allows the intern to apply their acquired knowledge and skills in a meaningful and practical context.

Introduction to Research Methodologies:

The internship experience includes exposure to and hands-on application of various research methodologies, offering a comprehensive understanding of their practical implications in real-world settings.

Opportunity for Academic Recognition:

As a testament to their scholarly contributions, the intern will have the opportunity to showcase their work at the NAU Undergraduate Research Symposium. This symposium serves as a recognition of their project and an avenue for professional exposure within the academic community.

Additional qualifications

Necessary training will be provided to accommodate various levels of expertise. Anthropology/Biology majors are encouraged to apply.

Time commitment

6 hrs/week for 30 weeks