



Chesapeake StREAM Internship Immersive Geovisualization of Landscape Change

Project Description

The Chesapeake Bay Program (www.chesapeakebay.net) and Chesapeake Research Consortium (www.chesapeake.org) seek a summer intern for late May through mid-August (12 weeks) to provide support to Chesapeake Bay Program (CBP) partnership goal implementation teams and workgroups. The Chesapeake Bay Program brings together leaders from state, federal and local government, as well as academia and the watershed's many communities, to collaborate on creating the best strategies and tools for cleaning up the Bay and the rivers and streams that flow into it. The Chesapeake Bay Program is fueled by science and driven by partnership.

The Chesapeake Bay Program's GIS team, is involved in a variety of projects related to analyzing landscape conditions, quantifying the potential impacts of land conversion on water quality, healthy watersheds and communities; and developing geo-visualization tools and aids to help federal/state, NGOs and local stakeholders to make informed decisions. Land conversion themes of interest include: urbanization, timber harvesting, and farmland abandonment. Impacts of interest include: loss of wildlife habitat, degradation of aquatic communities, erosion and sedimentation, alternation of stream flow, and adverse effects on under-served communities. Geo-visualization tools and aids include developing web and desktop GIS and visualization products to create immersive 3D visualizations to illustrate landscape characteristics and simulate natural and anthropogenic landscape change scenarios.

Recent advances in geospatial technologies have led to a proliferation in the use of three-dimensional (3D) geographic information systems (GIS) to better engage stakeholders for understanding issues and for decision-making. Concurrent with these advances, realistic and often immersive (e.g., virtual reality and augmented reality) experiences have become commonplace in the computer gaming industry. We are now at a point where geospatial data can be integrated with game technology to extend experiences to real world scenarios for scientific discovery and education. The result is a potentially much richer, more realistic, and intuitive user experience than previously capable through GIS alone.

This internship would provide an undergraduate student pursuing a game or simulation program an opportunity to develop one or more gamification applications communicating place-based landscape change scenarios (e.g. sea level rise, flooding, population growth and development). The intern would work with the CBP GIS Team to research the context of a given

scenario and extend corresponding GIS outputs provided by the GIS Team into interactive and dynamic experiences for the end user.

Opportunities

This internship will provide a unique opportunity to contribute to large-scale, long-term natural resource management and policy development critical to understanding new ways to improve Chesapeake Bay water quality and manage Chesapeake Bay living resources most effectively and efficiently across the 64,000 square mile Chesapeake Bay watershed. The C-StREAM student will gain experience in natural resource management, restoration science, and environmental policy. In addition, this internship experience will provide insights into careers in natural resource management, policy development and science beyond those applied for and allows students to make connections with established environmental management and science professionals.

Deliverables

- Development of one or more gamification applications communicating place-based landscape change scenarios (e.g. sea level rise, flooding, population growth and development).
- Presentation at the C-StREAM end of summer student symposium.

Requirements

- Knowledge of or experience working with either Unity or Epic's Unreal Engine technologies and an interest in applying that knowledge to environmental issues.
- GIS experience or interest is desired but not required.
- Motivated self-starter with ability to work and reason independently.
- Must be a college-level student entering sophomore, junior, or senior year of undergraduate study. Students are also eligible to participate during the immediate summer following their graduation if they are pursuing graduate studies in the fall.
- Must be a U.S. Citizen and willing to undergo a security background check.

Work Location and Duration

Due to health concerns, as well as CRC and EPA-CBP policies guiding us during COVID-19 we have not yet determined if this position will be virtual or in person. Currently, we are planning for both possibilities. If we are able to offer this position as an in-person opportunity it will be based out of the EPA's Chesapeake Bay Program Office in Annapolis, Maryland.

The internship is scheduled to begin Monday, May 24, 2021 and end Friday, August 13, 2021. These are our preferred dates, but the dates can be adjusted to accommodate a student's school schedule if required. We plan on providing interns with access to an EPA computer, email and phone services if this internship is offered in person. If the internship is virtual, interns will need to have access to a suitable internet, computer and communication resources.

Compensation

The intern will be reimbursed at the end of each month (June, July, and August), for a total of up to \$6,000 (\$500/week) for the equivalent of 12 weeks (480 hours) of full-time activities.

Candidates should expect to follow a normal weekday work schedule (roughly 9-5, M-F) with occasional variations for possible field work or other activities. No benefits are provided. We offer assistance in arranging local housing if the position is an in-person opportunity if desired. A one-time housing and transportation allowance of \$1,000 is available to each intern to assist with living and transportation expenses. Funds are also available to compensate interns for occasional work-related travel and professional development activities.

Diversity and Inclusion

The Chesapeake Research Consortium and EPA Chesapeake Bay Program are committed to supporting a diverse and inclusive science-oriented workforce. Our internship program endeavors to recruit from a diverse, qualified group of potential applicants to secure a high-performing workforce drawn from all segments of American society. CRC and CBP are strongly supportive of broadening the participation of historically Black colleges and universities, Hispanic serving institutions, Tribal colleges and universities, and institutions that work in underserved areas. We highly encourage applications from students at any of the above institutions as well as students that identify as Black, Indigenous, person of color or 1st generation college student.

Application Instructions

Application instructions, required materials, and the C-StREAM application portal can be found on the C-StREAM website (<http://chesapeake.org/c-stream/>).

The deadline for applications is February 20, 2021.