Opportunity and Significance

A ten-thousand year-old Land Bridge that hosted ancient hunters exists beneath the waters of Lake Huron. Access to this site is limited by hazardous conditions, physical strain, and financial expense.

Using Artificial Intelligence and Virtual Reality, the landscape and its inhabitants can be replicated and studied off-site before making plans to dive.

Technical Approach, Accomplishments and Results

Initially, a simulation of a landscape is generated from a collection of NOAA height measurements, and from this information ancient water-flow, vegetation growth, and herd movements are extrapolated.

Rulesets mimicking the behaviors of ancient hunters generate predictive patterns indicating strong probabilities of artifact sites. The University of Michigan archaeology team dives down to the predicted spot and makes note of what’s found there.

Technical Objectives

The major objective of this project is to see how realistically our predictive model can map to the real experiences of actual hunters, and assist in the work of archaeologists in the field. By comparing predicted models to actual hunter experiences demonstrated in VR, and comparing predicted hot-spots to actual finds, the system can be refined and improved.

Next Steps for Development and Test

With the VR headset system, we will invite hunters trained in native techniques from Alaska to experience the simulation, offer their own tactics for given landscapes, and comment on the placement of artifacts from both actual dive results, and predictions generated by rulesets.

Technical Objectives

The major objective of this project is to see how realistically our predictive model can map to the real experiences of actual hunters, and assist in the work of archaeologists in the field. By comparing predicted models to actual hunter experiences demonstrated in VR, and comparing predicted hot-spots to actual finds, the system can be refined and improved.

Next Steps for Development and Test

With the VR headset system, we will invite hunters trained in native techniques from Alaska to experience the simulation, offer their own tactics for given landscapes, and comment on the placement of artifacts from both actual dive results, and predictions generated by rulesets.

Related Work and State of Practice

Improvements to previous work allowed greater areas to be viewed at once, more AI-controlled agents to be present, and for verification of the implementation in a mathematically controlled environment.

Commercialization Plan & Partners

In addition to the Land Bridge VR experience benefitting archaeologists and anthropologists, it will also serve as an advance of the “citizen scientist” community, those who wish to take part in such research but lack the means to reach such sites themselves.

References

