COMPUTER SCIENCE & COMPUTER ENGINEERING | UWL

DISTINGUISHED LECTURE SERIES

in Computer Science

Monday, October 23
Cleary Alumni & Friends Center

SCHEDULE OF EVENTS

10:30 a.m. **Registration** | Cleary Alumni & Friends Center | UWL Campus

11 a.m. **SYMPOSIUM**

Shading Languages and the Emergence of Programmable Graphics System

A major challenge in using computer graphics for movies and games is to create a rendering system that can create realistic pictures of a virtual world. The system must handle the variety and complexity of the shapes, materials, and lighting that combine to create what we see every day. The images must also be free of artifacts, emulate cameras to create depth of field and motion blur, and compose seamlessly with photographs of live action.

Pixar's RenderMan was created for this purpose, and has been widely used in feature film production. A key innovation in the system is to use a shading language to procedurally describe appearance. Shading languages were subsequently extended to run in real-time on graphics processing units (GPUs), and now shading languages are widely used in game engines. The final step was the realization that the GPU is a data-parallel computer, and the the shading language could be extended into a general-purpose data-parallel programming language. This enabled a wide variety of applications in high performance computing, such as physical simulation and machine learning, to be run on GPUs. Nowadays, GPUs are the fastest computers in the world.

This talk will review the history of shading languages and GPUs, and discuss the broader implications for computing.

4:30 p.m. **Registration** | Cleary Alumni & Friends Center | UWL Campus

5 p.m. **KEYNOTE**

You Can be an Innovator

What does it mean to be an innovator and why should you care? Innovation is not confined to the realm of technology or a select group of naturally gifted geniuses, but is a mindset and skill set that can be cultivated by anyone. I think everyone has many opportunities to innovate, and can learn to be innovative. Innovation captures creativity for the general good and in this talk, I will give some concrete suggestions on how to develop habits of creativity and innovation based on my life experiences.

PAT HANRAHAN

is the Canon Professor of Computer Science and Electrical Engineering in the Computer Graphics Laboratory at Stanford University. As a founding employee at Pixar Animation Studios, Hanrahan led the design of RenderMan. Hanrahan served as a co-founder and CTO of Tableau Software. He has received three Academy Awards for Science and Technology, the SIGGRAPH Computer Graphics Achievement Award, the SIGGRAPH Stephen A. Coons Award, and the IEEE Visualization Career Award. He is a member of the National Academy of Engineering and the American Academy of Arts and Sciences. In 2019, he received the ACM A.M. Turing Award. Dr. Hanrahsn was born and raised in Green Bay, Wisconsin. He studied at the University of Wisconsin, Madison where he earned an undergradaute B.S. degree in Nuclear Engineering and a Ph.D. in Biophysics.

For further information about the lecture contact:

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