

Synopsys Announces Results of Robert S. Hilbert Memorial Optical Design Competition

Annual Competition Recognizes Student Achievements in Optical Design

MOUNTAIN VIEW, Calif., Aug. 25, 2014 /PRNewswire/ -- Synopsys, Inc., a global leader providing software, IP and services used to accelerate innovation in chips and electronic systems, today announced that four students, Xinda Hu of the University of Arizona, and Anthony Vella, Aaron Bauer, and Nicolas Brown, all of the University of Rochester, are the winners of the 2014 Robert S. Hilbert Memorial Optical Design Competition. The competition was established in 2000 by Optical Research Associates (ORA®), now Synopsys' Optical Solutions Group, and was named in honor of ORA's former president and chief executive officer, Robert S. Hilbert. The annual competition is open to students in North America working toward a bachelor's, master's, or Ph.D. degree who utilize Synopsys' CODE V® or LightTools® software to perform optical design and engineering research. The awards are granted to students who have submitted papers that demonstrate optical design excellence.

Xinda Hu of the University of Arizona was recognized for his work using CODE V and LightTools as documented in his paper titled "Design of an Optical See-Through Multi-Focal-Plane Head-Mounted Display Using Freeform Optics." Hu incorporated a freeform prism eyepiece and matching compensator in a 3-D see-through head-mounted display to optimize depth perception and performance across a wide field of view.

"I am honored that my work was chosen for an award," said Xinda Hu. "Winning this award inspires me to strive to further excel in optical design and to continue making contributions in the field of optics in my career after graduation. I would like to thank Synopsys for providing this design competition opportunity and, more importantly, for providing continuous support of software licenses for academic use."

Anthony Vella of the University of Rochester was recognized for his work using CODE V to design a zoom lens for high-dynamic range (HDR) photography. Vella's paper, titled "Retrofocus 2.5x Zoom Lens for Single-Shot, Single-Lens HDR Photography and Video," describes a camera that records the same image at different exposures on three sensors simultaneously. This makes it possible to directly record HDR video images with a high level of detail in both bright and dark areas of a scene, without requiring post-processing software to create a composite image.

"It is a great honor to receive this award," said Anthony Vella. "This project made me realize that lens design is a hands-on learning experience, and it has taught me valuable design skills. For example, I learned to develop system specifications carefully and precisely, because each millimeter of back focal distance can take a toll on the performance of a lens."

Aaron Bauer of the University of Rochester was recognized for his project using CODE V titled "Visual Space Assessment of Two All-Reflective, Freeform Optical See-Through Head-Worn Displays." Bauer's head-worn display (HWD) designs in CODE V incorporate freeform optical surfaces to facilitate smaller system sizes and minimize optical aberrations. This allows the HWDs to be lightweight and compact, and to provide high-quality imaging performance.

Nicolas Brown of the University of Rochester was recognized for his project using CODE V titled "Pushing the Envelope of Mobile Phone Imaging with Curved Sensors." Brown's design explores the use of novel curved sensors in a cell phone camera to dramatically improve the system's imaging performance in low-light conditions, while at the same time meeting stringent packaging constraints.

"The winning entries in this year's competition demonstrated impressive use of CODE V and LightTools technologies to create innovative optical designs, and included considerations for a variety of system performance, packaging and manufacturing challenges," said George Bayz, vice president and general manager of Synopsys' Optical Solutions Group. "Congratulations to all the winners on their achievements."

About the Robert S. Hilbert Memorial Optical Design Competition

The annual Robert S. Hilbert Memorial Optical Design Competition recognizes excellence in optical design projects completed by students. The competition honors the memory of Robert Hilbert (1941-2008), former president and chief executive officer of Optical Research Associates, who was deeply committed throughout his career to fostering technical innovation in optics and supporting optics education. The competition is open to students in North America working toward a bachelor's, master's or Ph.D. degree. To participate, students can enter an optical design class assignment or thesis work that uses CODE V or LightTools software. For more information, visit <http://optics.synopsys.com/learn/learn-design-competition.html>.

About Synopsys

Synopsys, Inc. (Nasdaq: SNPS) accelerates innovation in the global electronics market. As a leader in electronic design automation (EDA) and semiconductor IP, Synopsys delivers software, IP and services to help engineers address their design, verification, system and manufacturing challenges. Since 1986, engineers around the world have been using Synopsys technology to design and create billions of chips and systems. Learn more at www.synopsys.com.

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