Ferdi Scheepers

Effects Supervisor and Technical Director at Pixar Animation Studios

Dr. Ferdi Scheepers is the Effects Supervisor and Technical Director (TD) at Pixar Animation Studios. He's currently working on Pixar's forthcoming movie *The Good Dinosaur*. Scheepers joined Pixar in January 2002 as a Global Technology TD, working on dynamic wrinkle mapping and fracturing tools for *The Incredibles*. In his 10 years at Pixar, Scheepers has rotated between doing production-related software development, creating, leading and supervising computer graphics (CG) effects for animated features and short films. Scheepers's feature film credits include several Academy Award-winning animated feature film, *Cars*. "I love working with the very talented people at Pixar. It fascinates me that so many experts in a variety of disciplines can work together to create a work of art," Scheepers said.

Scheepers is also credited as Effects Lead for the animated short film *Tokyo Mater* and as Effects Supervisor for the Academy Award- nominated short film, *La Luna*. Scheepers co-developed a volumetric rendering system called Atmos, which is used at Pixar to shade and render volumetric effects such as clouds, dust, fire and explosions. The system allows effects artists to build complex volume shaders and fine-tune them for specific effects, in of much the same way as shading networks for surface shaders are constructed. In addition to Atmos, Scheepers has developed and deployed several production tools for creating procedural CG effects, including tools to build complex structures such as the trash towers in *Wall-E*, and tools to model broken structures such as shattered glass and collapsed buildings in *The Incredibles*.

For *Cars*, Scheepers developed a system to break up the road surface in the fictional town of Radiator Springs, below. This work included creating the effects for the wrecked road sequence and creating several versions of the wrecked road model in stages of repair. As sequence lead on *Wall-E*, Scheepers was responsible for the reconnaissance ship landing sequence and for deploying and supporting Atmos. He also created the falling trash tower effect. As sequence lead on *Toy Story 3*, Scheepers was responsible for the effects and simulation in seven sequences, including those where Buzz escapes from the Caterpillar room in the day care and when the toys are inside the dump truck on the way to the trash dump. Here, Scheepers used a proprietary, programmable rigid body dynamics simulator to create models of ropes and deformable trash. When asked about his favorite project, Scheepers said "My favorite project is always the current one! I'm the Effects Supervisor for *The Good Dinosaur*, an animated feature film scheduled for release in 2014." *The Good Dinosaur* asks the question what if the asteroid that killed all the dinosaurs missed Earth and these creatures never went extinct.

Before joining Pixar, Scheepers worked at the CSIR Satellite Applications Centre in South Africa as technology manager and manager of the earth observation research and development program. He worked on applying 3D computer graphics technologies to the fields of remote sensing and geographic information systems, developing new applications in geo-spatial visualization and analysis. Scheepers received his PhD from Ohio State in 1996 for research in anatomy-based model-ing of the human musculature. While at Ohio State, Scheepers worked at ACCAD, developing software tools for animation artists and for medical applications. He also developed several software tools for award-winning artist and computer graphics pioneer, Professor Emeritus Charles A. Csuri.

Scheepers was born and grew up in South Africa. He developed an interest in animation at an early age, creating short hand-drawn animation and Claymation pieces using an 8-mm film camera with a single-frame advance function. In high school, while attending one of the first computer studies courses offered in South Africa, Scheepers realized the potential of using computers as tools for creating animations. Later, at the University of Johannesburg, Scheepers completed his BSc Hons and MSc degrees, both Cum Laude, majoring in Computer Science and Computer Graphics. He received the Nico Diedericks Mining Industry Research Scholarship for overseas advanced study that enabled him to attend Ohio State. He lives in Pleasant Hill, California, with his wife Roné and three sons, Nicolas, Conrad and Dewald.

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Yu-Chee Tseng

Dean of the College of Computer Science, National Chiao-Tung University, Taiwan

Dr. Yu-Chee Tseng received his PhD in Computer and Information Science from the Ohio State University in 1994. In 2004 he joined the faculty at the National Chiao-Tung University in Taiwan and is now the Dean of the College of Computer Science for the University. Previously, Tseng served as the Chairman from 2005 to 2009 and Chair Professor since 2011 at the university.

While at Ohio State, Tseng worked with Professor Ten-Hwang (Steve) Lai. After graduating, Tseng became involved in the research of wireless networks. Tseng is well known for his technical contributions in the area of wireless and mobile networks. His most distinct contribution is the discovery of the "Broadcast Storm Problem" in mobile ad hoc networks and the related solutions. When radio signals are sent over a geographic area frequently, they are likely to overlap with one another. This results in collision and contention amongst the signals, known as a "broadcast storm." Being able to resolve these signal problems is necessary to establish networks of wireless signals used in Wi-fi and cellular phones. In addition to resolving practical problems in wireless networks, Tseng's contributions in the field are significant in the scholastic development of wireless network research. More than 3,000 articles reference his work. Further, Tseng's results have been used by other researchers who have applied his solutions to many kinds of wireless networks, such as sensor networks, mesh networks and vehicular networks. Tseng has also made original contributions to the field of wireless sensor networks. He has authored a series of pioneering papers that address the coverage and real-life applications of sensor networks. These works have been cited over thousands of times and have significantly influenced the field.

The training that Tseng received at OSU helped him greatly in his academic career. He learned how to identify fundamental issues when encountering complex research topics. According to the Google Scholar search, the extraordinary scientific contributions he made can be reflected by more than 10,000 citations referring to his research works. With an h-index of 50, he stands out as one of the top-tier researchers in his discipline. According to ScienceWatch.com, he was ranked number 6 by paper count and number 12 by the number of citations per paper in the category of "wireless and mobile networks" from 1995 to 2005.

As a Buckeye alumnus, Tseng is most proud of being a recipient of the Distinguished Alumnus Award from OSU in 2005. Tseng also received three impressive Outstanding Research Awards, awarded annually to the top 3% of researchers by the National Science Council, Taiwan. In 2003, he received the Best Paper Award at the International Conference on Parallel Processing (ICPP). Tseng is still very active with research; he has received the Elite I. T. Award (2004), and the Y. Z. Hsu Scientific Paper Award (2009). His current research interests include mobile computing, wireless communication, and parallel and distributed computing. He has served on the editorial boards of IEEE Transactions on Vehicular Technology from 2005 to 2009, IEEE Transactions on Mobile Computing from 2006 to 2011, and currently serves on the board of IEEE Transactions on Parallel and Distributed Systems, a position he has held since 2008. Recently, he was recognized as an IEEE Fellow "For fundamental contributions to wireless and mobile networks."

In 2011, Tseng helped organize the International Conference of Parallel Processing in Taipei (see photo at right). Co-organizers of this conference included Ohio State Professors Mike Liu, Steve Lai and Department Chair Xiaodong Zhang. Many people joined to celebrate the 40th anniversary of the prestigious conference in Taipei. According to Professor Liu, this was "the most successful ICPP in the past 10 years."

Beside research work, Tseng's favorite activity is to travel around national parks in northern America and camp. He hopes that someday he can bring his family back to Columbus and visit the Buckeye Village, where his first daughter was born and enjoy the wonderful atmosphere of OSU.

Dr. Tseng honors his advisor Ming-Tse Mike Liu at ICPP 2011 for serving as the ICPP steering committee chair for 40 years. Dr. Tseng served as program chair for the 2011 conference in Taipei, Taiwan. From left: Mike Liu, Ten-Hwang Steve Lai, Xiaodong Zhang and Yu-Chee Tseng.