

19 Scientific And Technical Achievements To Be Honored With Academy Awards®

**Peter W. Anderson to receive Gordon E. Sawyer Award;
Charles “Tad” Marburg to receive John A. Bonner Medal of Commendation**

BEVERLY HILLS, CA – The Academy of Motion Picture Arts and Sciences today announced that 19 scientific and technical achievements represented by 52 individual award recipients will be honored at its annual Scientific and Technical Awards Presentation on Saturday, February 15, at The Beverly Hills Hotel.

In addition, visual effects supervisor and director of photography Peter W. Anderson, ASC will receive the Gordon E. Sawyer Award (an Oscar® statuette) for technological contributions that have brought credit to the industry. Post-production and distribution executive Charles “Tad” Marburg will receive the John A. Bonner Medal of Commendation for outstanding service and dedication in upholding the high standards of the Academy.

For the first time in the history of the Scientific and Technical Awards, a large number of individuals, collectively, will be recognized with an Academy Award® of Merit (an Oscar statuette). The award is dedicated to “all those who built and operated film laboratories, for over a century of service to the motion picture industry.”

“This year’s honorees have in a myriad of ways enabled today’s moviegoing experience,” said Richard Edlund, Academy Award-winning visual effects artist and Scientific and Technical Awards Committee Chair. “Their efforts have advanced not only the art and science of motion pictures, but the work of countless global industries.”

Unlike other Academy Awards to be presented this year, achievements receiving Scientific and Technical Awards need not have been developed and introduced during 2013. Rather, the achievements must demonstrate a proven record of contributing significant value to the process of making motion pictures.

The Academy Awards for scientific and technical achievements are:

TECHNICAL ACHIEVEMENT AWARDS (ACADEMY CERTIFICATES)

To **Olivier Maury, Ian Sachs** and **Dan Piponi** for the creation of the ILM Plume system that simulates and renders fire, smoke and explosions for motion picture visual effects.

The unique construction of this system combines fluid solving and final image rendering on the GPU (Graphics Processing Unit) hardware without needing an intermediate step involving the CPU. This innovation reduces turnaround time, resulting in significant efficiency gains for the ILM effects department.

To **Ronald D. Henderson** for the development of the FLUX gas simulation system.

The use of the Fast Fourier Transform for solving partial differential equations allows FLUX a greater level of algorithmic efficiency when multi-threading on modern hardware. This innovation enables the creation of very high-resolution fluid effects while maintaining fast turnaround times.

To **Andrew Camenisch, David Cardwell** and **Tibor Madjar** for the concept and design, and to **Csaba Kohegyi** and **Imre Major** for the implementation of the Mudbox software.
Mudbox provides artists powerful new design capabilities that significantly advance the state of the art in multi-resolution digital sculpting for film production.

To **Martin Hill, Jon Allitt** and **Nick McKenzie** for the creation of the spherical harmonics-based efficient lighting system at Weta Digital.
The spherical harmonics lighting pipeline precomputes and reuses a smooth approximation of time-consuming visibility calculations. This enables artists to quickly see the results of changing lights, materials and set layouts in scenes with extremely complex geometry.

To **Florian Kainz, Jeffery Yost, Philip Hubbard** and **Jim Hourihan** for the architecture and development of the Zeno application framework.
For more than a decade, Zeno's flexible and robust design has allowed the creation of a broad range of Academy Award-winning visual effects toolsets at ILM.

To **Peter Huang** and **Chris Perry** for their architectural contributions to, and to **Hans Rijpkema** and **Joe Mancewicz** for the core engineering of, the Voodoo application framework.
For more than a decade, Voodoo's unique design concepts have enabled a broad range of character animation toolsets to be developed at Rhythm & Hues.

To **Matt Pharr, Greg Humphreys** and **Pat Hanrahan** for their formalization and reference implementation of the concepts behind physically based rendering, as shared in their book *Physically Based Rendering*.
Physically based rendering has transformed computer graphics lighting by more accurately simulating materials and lights, allowing digital artists to focus on cinematography rather than the intricacies of rendering. First published in 2004, Physically Based Rendering is both a textbook and a complete source-code implementation that has provided a widely adopted practical roadmap for most physically based shading and lighting systems used in film production.

To **Dr. Peter Hillman** for the long-term development and continued advancement of innovative, robust and complete toolsets for deep compositing.
Dr. Hillman's ongoing contributions to standardized techniques and a common deep image file format have enabled advanced compositing workflows across the digital filmmaking industry.

To **Colin Doncaster, Johannes Saam, Areito Echevarria, Janne Kontkanen** and **Chris Cooper** for the development, prototyping and promotion of technologies and workflows for deep compositing.
Their contributions include early advancements in key deep compositing features such as layer and holdout-order independence, spatial and intra-element color correction, post-render depth of field, and precise blending of complex layer edges.

To **Thomas Lokovic** and **Eric Veach** for their influential research and publication of the fundamental concepts of deep shadowing technology.
Providing a functional and efficient model for the storage of deep opacity information, this technology was widely adopted as the foundation of early deep compositing pipelines.

To **Gifford Hooper** and **Philip George** of HoverCam for the continuing development of the Helicam miniature helicopter camera system.

The current Helicam system is a high-speed, extremely maneuverable, turbine-engine, radio-controlled miniature helicopter that supports professional film and digital cinema cameras. Helicam provides a wide range of stabilized, remotely operated pan, tilt and roll capabilities, achieving shots impossible for full-size helicopters.

To **John Frazier**, **Chuck Gaspar** and **Clay Pinney** for the design and development of the Pneumatic Car Flipper.

This self-contained high-pressure pneumatic device safely launches a stationary full-sized car on a predetermined trajectory. The precision of operation enhances the safety of performers, and the physical design allows a rapid setup and strike.

To **Joshua Pines**, **David Reisner**, **Lou Levinson**, **Curtis Clark, ASC**, and **David Register** for the development of the American Society of Cinematographers Color Decision List technology.

The ASC CDL unifies color correction principles for use on- and off-set, providing for the faithful reproduction of color values across a variety of color correction devices. This technology provides basic image-processing mathematics that translate the lift, gamma and gain settings to a set of common color values to help preserve the cinematographer's intent throughout production.

To **Jeremy Selan** for the development of the OpenColorIO color management framework.

OpenColorIO, developed at Sony Pictures Imageworks, is an open source framework that enables consistent color visualization of motion picture imagery across multiple facilities and numerous software applications.

SCIENTIFIC AND ENGINEERING AWARDS (ACADEMY PLAQUES)

To **Ofer Alon** for the design and implementation of the ZBrush software tool for multi-resolution sculpting of digital models.

ZBrush pioneered multi-resolution digital sculpting, transforming how artists conceive and realize their final designs. ZBrush has enabled artists to create models far more quickly and with much greater detail than previous approaches.

To **Eric Veach** for his foundational research on efficient Monte Carlo path tracing for image synthesis.

Physically based rendering has transformed computer graphics lighting by more accurately simulating materials and lights, allowing digital artists to focus on cinematography rather than the intricacies of rendering. In his 1997 Ph.D. thesis and related publications, Veach formalized the principles of Monte Carlo path tracing and introduced essential optimization techniques, such as multiple importance sampling, which make physically based rendering computationally feasible.

To **Andre Gauthier**, **Benoit Sevigny**, **Yves Boudreault** and **Robert Lanciault** for the design and implementation of the FiLMBOX software application.

FiLMBOX, the foundation of MotionBuilder, enables the real-time processing and control of

devices and animation. For over two decades, its innovative architecture has been a basis for the development and evolution of new techniques in filmmaking, such as virtual production.

To **Emmanuel Prévinaire, Jan Sperling, Etienne Brandt** and **Tony Postiau** for their development of the Flying-Cam SARAH 3.0 system.

This battery-powered, radio-controlled, miniature helicopter camera system employs computer-assisted piloting and tele-operation in an airframe that utilizes GPS-assisted flight controls for aerial filming of unparalleled sophistication. Flying-Cam SARAH achieves shots impossible for full-size helicopters, cable systems or other traditional camera support devices.

ACADEMY AWARD® OF MERIT (OSCAR® STATUETTE)

To all those who built and operated film laboratories, for over a century of service to the motion picture industry.

Lab employees have contributed extraordinary efforts to achieve filmmakers' artistic expectations for special film processing and the production of billions of feet of release prints per year. This work has allowed an expanded motion picture audience and unequaled worldwide cinema experience.

GORDON E. SAWYER AWARD (OSCAR STATUETTE)

Peter W. Anderson,

Presented to an individual in the motion picture industry whose technological contributions have brought credit to the industry.

JOHN A. BONNER MEDAL OF COMMENDATION (MEDALLION)

Charles "Tad" Marburg

Presented in appreciation for outstanding service and dedication in upholding the high standards of the Academy of Motion Picture Arts and Sciences.

Portions of the Scientific and Technical Awards Presentation will be included in the Oscar telecast.

Academy Awards® for outstanding film achievements of 2013 will be presented on Oscar Sunday, March 2, at the Dolby Theatre® at Hollywood & Highland Center® and televised live on the ABC Television Network. The presentation, produced by Craig Zadan and Neil Meron, also will be televised live in more than 225 countries and territories worldwide.