

## Contributors

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***Tomas Akenine-Möller, Lund University***

Tomas Akenine-Möller is an associate professor in the department of computer science at Lund University in Sweden. His main interests lie in real-time rendering, graphics on mobile devices, and shadows.



***Arul Asirvatham, Microsoft Research***

Arul Asirvatham is a Ph.D. student in the School of Computing, University of Utah. He received a B.Tech. in computer science and engineering in 2002 from the Indian Institute of Information Technology in India. His primary research interest is digital geometry processing; he has been working on mesh parameterization techniques. He is also interested in real-time computer graphics. Currently he is focusing on rendering huge terrain data sets interactively.



***Jiří Bittner, Vienna University of Technology***

Jiří Bittner is currently affiliated with the Institute of Computer Graphics and Algorithms of the Vienna University of Technology. He received his Ph.D. in 2003 from the department of computer science and engineering of the Czech Technical University in Prague. His research interests include visibility computations, efficient real-time rendering techniques, global illumination, and computational geometry.



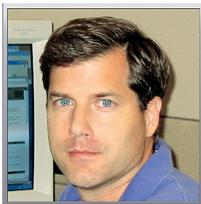
***Kevin Bjorke, NVIDIA Corporation***

Kevin Bjorke is a member of the Developer Technology group at NVIDIA. He was a section editor and authored several chapters for *GPU Gems*. He has an extensive and award-winning production background in live-action and computer-animated films, television, advertising, theme park rides, and, of course, games. Kevin has been a regular speaker at events such as Game Developers Conference (GDC) and ACM SIGGRAPH since the mid-1980s. His current work at NVIDIA involves exploring and harnessing the power of programmable shading for high-quality real-world applications.



***Ian Buck, Stanford University***

Ian Buck is completing his Ph.D. in computer science at the Stanford Computer Graphics Lab, researching general-purpose computing models for GPUs. He received a B.S.E. in computer science from Princeton University in 1999 and received fellowships from the Stanford School of Engineering and NVIDIA. His research focuses on programming language design for graphics hardware as well as general-computing applications that map to graphics hardware architectures.



***Michael Bunnell, NVIDIA Corporation***

Michael Bunnell graduated from Southern Methodist University with degrees in computer science and electrical engineering. He wrote the Megamax C compiler for the Macintosh, Atari ST, and Apple IIGS before cofounding what is now LynuxWorks. After working on real-time operating systems for nine years, he moved to Silicon Graphics, focusing on image-processing, video, and graphics software. Next, he worked at Gigapixel, then at 3dfx, and now at NVIDIA, where, interestingly enough, he is working on compilers again—this time, shader compilers.



***Iain Cantlay, Climax Entertainment***

Iain Cantlay is currently a senior engineer at Climax, where he was responsible for the graphical aspects of the *Leviathan* MMO engine and *Warhammer Online*. His current projects include *MotoGP 3* (to be published for Xbox and PC by THQ in 2005). Iain is passionate about exploiting the best visuals from the latest technology, but natural phenomena interest him most: terrain, skies, clouds, vegetation, and water.



***Francesco Carucci, Lionhead Studios***

Francesco Carucci graduated from the Politecnico di Torino in Italy with a degree in software engineering. When he was eight, rather than make pizza (like every good Italian), he decided to make video games, and he tried to animate a running character in BASIC on an Intellivision. He is now writing code to animate running characters at Lionhead, working on the latest rendering technology for *Black & White 2*. He contributed to various Italian technical 3D sites and to *ShaderX2*. His main interests include lighting and shadowing algorithms, 3D software construction, and the latest 3D hardware architectures. And when he needs help, he writes shaders for food.



***Cem Cebenoyan, NVIDIA Corporation***

Cem Cebenoyan is a software engineer working in the Developer Technology group at NVIDIA. He was an author and section editor for *GPU Gems*. He spends his days researching graphics techniques and helping game developers get the most out of graphics hardware. He has spoken at past Game Developer Conferences on character animation, graphics performance, and nonphotorealistic rendering. Before joining NVIDIA, he was a student and research assistant in the Graphics, Visualization, and Usability Lab at the Georgia Institute of Technology.



***Eric Chan, Massachusetts Institute of Technology***

Eric Chan is a Ph.D. student in the Computer Science and Artificial Intelligence Laboratory at M.I.T. He fiddles with graphics architectures, shading languages, and real-time rendering algorithms. He has recently developed efficient methods for rendering hard and soft shadows. Before attending graduate school, Eric was a research staff member in the Stanford Computer Graphics Laboratory. As part of the Real-Time Programmable Shading team, he wrote compiler back ends for the NV30 and R300 fragment architectures and developed a pass-decomposition algorithm for virtualizing hardware resources. Eric enjoys photography and spends an unreasonable amount of his free time behind the camera.



***Greg Coombe, The University of North Carolina at Chapel Hill***

Greg Coombe is a graduate student at the University of North Carolina at Chapel Hill. He received a B.S. in mathematics and a B.S. in computer science from the University of Utah in 2000. Greg's research interests include global illumination, graphics hardware, nonphotorealistic rendering, virtual environments, and 3D modeling. During the course of his graduate studies, he has worked briefly at Intel, NVIDIA, and Vicious Cycle Software. Greg was the recipient of the NVIDIA Graduate Fellowship in 2003 and 2004.



***Jürgen Döllner, University of Potsdam, Hasso-Plattner-Institute***

Jürgen Döllner, a professor at the Hasso-Plattner-Institute of the University of Potsdam, directs the computer graphics and visualization division. He has studied mathematics and computer science and received a Ph.D. in computer science. He researches and teaches in real-time computer graphics and spatial visualization.



***William Donnelly, NVIDIA Corporation and University of Waterloo***

William Donnelly is a fourth-year undergraduate in computer science and mathematics at the University of Waterloo in Ontario. He interned with Okino Computer Graphics, where he worked on global illumination and volumetric rendering; and with NVIDIA's Demo Team, where he worked on the "Last Chance Gas" and "Nalu" demos. He has been destined for greatness in computer graphics since mastering the art of the Bezier spline at age ten.



***Frédo Durand, Massachusetts Institute of Technology***

Frédo Durand received a Ph.D. from Grenoble University in France in 1999, where he worked on both theoretical and practical aspects of 3D visibility. From 1999 until 2002, he was a postdoc in the M.I.T. Computer Graphics Group, where he is now an assistant professor. His research interests span most aspects of picture generation and creation, including realistic graphics, real-time rendering, nonphotorealistic rendering, and computational photography. He received a Eurographics Young Researcher Award in 2004. (*Digital drawing courtesy of Victor Ostromoukhov*)



**Eric Enderton, NVIDIA Corporation**

Eric Enderton is a senior engineer at NVIDIA, where he is working on the Gelato film renderer. After studying computer science at the University of California, Berkeley, Eric spent a decade developing rendering and animation software at Industrial Light & Magic, and he later consulted at other studios. His film credits include *Terminator 2*; *Jurassic Park*; and *Star Wars, Episode I: The Phantom Menace*.



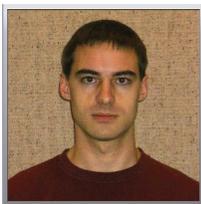
**Zhe Fan, Stony Brook University**

Zhe Fan is a Ph.D. candidate in the computer science department at Stony Brook University. He received a B.S. in computer science from the University of Science and Technology of China in 1998 and an M.S. in computer science from the Chinese Academy of Sciences in 2001. His current research interests include GPU clusters for general-purpose computation, parallel graphics and visualization, and modeling of amorphous phenomena.



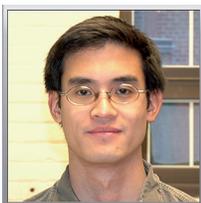
**Randima Fernando, NVIDIA Corporation**

Randima (Randy) Fernando has loved computer graphics since age eight. Working in NVIDIA's Developer Technology group, he helps teach developers how to take advantage of the latest GPU technology. Randy has a B.S. in computer science and an M.S. in computer graphics, both from Cornell University. He has published research in SIGGRAPH and is coauthor, with Mark Kilgard, of *The Cg Tutorial: The Definitive Guide to Programmable Real-Time Graphics*. He edited *GPU Gems: Programming Techniques, Tips, and Tricks for Real-Time Graphics* and is the *GPU Gems* series editor.



**Nathaniel Fout, University of California, Davis**

Nathaniel Fout received a B.S. in chemical engineering and an M.S. in computer science from the University of Tennessee in 2002 and 2003, respectively. He is a Ph.D. student in computer science at the University of California, Davis, where he is a member of the Institute for Data Analysis and Visualization. His research interests include volumetric compression for rendering, multivariate and comparative visualization, and tensor visualization.



**James Fung, University of Toronto**

James Fung is completing his Ph.D. in engineering. He received a B.A.Sc. in engineering science and an M.S. in electrical engineering from the University of Toronto. His research interests include wearable computing, mediated reality, and exploring new types of musical instrument interfaces based on EEG brain-wave signal processing. His most recent work has been the development of the GPU-based computer vision and mediated reality library called OpenVIDIA.



***Simon Green, NVIDIA Corporation***

Simon Green is a senior software engineer in the Developer Technology group at NVIDIA. He started graphics programming on the Sinclair ZX-81, which had 1 kB of RAM and a screen resolution of  $64 \times 48$  pixels. He holds a B.S. in computer science from the University of Reading, in the United Kingdom, in 1994. Since 1999 Simon has found a stable home at NVIDIA, where he develops new rendering techniques and helps application developers take maximum advantage of GPU hardware. He is a frequent presenter at GDC, has written for *Amiga Shopper* and *Wired* magazines, and was a section editor for *GPU Gems*. His research interests include cellular automata, general-purpose computation on GPUs, and analog synthesizers.



***Toshiya Hachisuka, University of Tokyo***

Toshiya Hachisuka is an undergraduate in the Department of Systems Innovation at the University of Tokyo. He also works as a programmer for MagicPictures, integrating cutting-edge research results into current computer graphics software. He has studied computer graphics since age ten. His current research interests are physically based rendering, physically based modeling, real-time rendering techniques, and general-purpose computation on GPUs.



***Markus Hadwiger, VRVis Research Center***

Markus Hadwiger received his Ph.D. in computer science from the Vienna University of Technology in 2004, where he concentrated on high-quality real-time volume rendering and texture filtering with graphics hardware, in cooperation with the VRVis Research Center. He has been a researcher at VRVis since 2000, working in the Basic Research on Visualization group and the Medical Visualization group (since 2004). From 1996 to 2001, he was also the lead programmer of the cross-platform 3D space-shooter game *Parsec*, which is now an open source project.



***Mark Harris, NVIDIA Corporation***

Mark Harris received a B.S. from the University of Notre Dame in 1998 and a Ph.D. in computer science from the University of North Carolina at Chapel Hill (UNC) in 2003. At UNC, Mark's research covered a wide variety of computer graphics topics, including real-time cloud simulation and rendering, general-purpose computation on GPUs, global illumination, nonphotorealistic rendering, and virtual environments. Mark is now a member of NVIDIA's Developer Technology team based in the United Kingdom.



***Jon Hasselgren, Lund University***

Jon Hasselgren received an M.Sc. from Lund University. He now pursues graduate studies in the computer science department, where he researches graphics for mobile phones.



**Oliver Hoeller, Piranha Bytes**

Oliver Hoeller is a senior software engineer at Piranha Bytes, which developed the RPGs *Gothic I* and *Gothic II*. Previously he was director of development at H2LabsCodecult, where he was responsible for development and architecture design of the Codecreatures game system. He was an active member of the German demo scene in the 1980s and early 1990s. After exploring different areas—developing music software, creating a security program, and working as a Web services consultant—Oliver returned to his roots and now guarantees a high level of visual quality for Piranha Bytes' forthcoming *Gothic III*.



**Hugues Hoppe, Microsoft Research**

Hugues Hoppe is a senior researcher in the Computer Graphics Group at Microsoft Research. His primary interests lie in the acquisition, representation, and rendering of geometric models. He received the 2004 ACM SIGGRAPH Achievement Award for his pioneering work on surface reconstruction, progressive meshes, geometry texturing, and geometry images. His publications include twenty papers at ACM SIGGRAPH, and he is associate editor of *ACM Transactions on Graphics*. He received a B.S. in electrical engineering in 1998 and a Ph.D. in computer science in 1994 from the University of Washington.



**Daniel Horn, Stanford University**

Daniel Horn is a Ph.D. candidate at the Stanford Computer Graphics Lab; he received his B.S. from the University of California, Berkeley. While Daniel focuses on programming graphics hardware and real-time graphics, theory and compilers have always interested him deeply, and he tries to incorporate knowledge from those fields into his graphics research. In his spare time, Daniel enjoys hacking with his brother, Patrick, on their open source space sim, *Vega Strike*. He also enjoys roaming with friends in the Bay Area's many natural parks, from Palo Alto's Foothills Park to Berkeley's Tilden Park.



**Samuel Hornus, GRAVIR/IMAG-INRIA**

Samuel Hornus is a Ph.D. candidate at INRIA in Grenoble, France. He is a former student of the Ecole Normale Supérieure de Cachan. His research focuses on 3D visibility problems, as well as other aspects of computer graphics, such as texture authoring, interactive walkthroughs, real-time shadows, realistic rendering, implicit surfaces, and image-based modeling.



***Arie Kaufman, Stony Brook University***

Arie Kaufman is the director of the Center for Visual Computing, a distinguished professor and chair of the Computer Science Department, and distinguished professor of radiology at Stony Brook University. He received a B.S. in mathematics and physics from the Hebrew University of Jerusalem in 1969; an M.S. in computer science from the Weizmann Institute of Science, Rehovot, Israel, in 1973; and a Ph.D. in computer science from the Ben-Gurion University, Israel, in 1977. Kaufman has conducted research and consulted for more than thirty years, with numerous publications in volume visualization; graphics architectures, algorithms, and languages; virtual reality; user interfaces; and multimedia.



***Jan Kautz, Massachusetts Institute of Technology***

Jan Kautz is a postdoctoral researcher at M.I.T. He is particularly interested in realistic shading and lighting, hardware-accelerated rendering, textures and reflection properties, and interactive computer graphics. He received his Ph.D. in computer science from the Max-Planck-Institut für Informatik in Germany; a diploma in computer science from the University of Erlangen in Germany; and an M.Math. from the University of Waterloo in Ontario.



***Emmett Kilgariff, NVIDIA Corporation***

Emmett Kilgariff is a director of architecture in the GPU group at NVIDIA, where he has contributed to the design of many GeForce chips, including the GeForce 6 and GeForce 7 Series. He has more than twenty years of experience designing graphics hardware, at Sun Microsystems, Silicon Graphics, 3dfx, and many small companies whose memories have faded over time.



***Gary King, NVIDIA Corporation***

Unscrupulous. Unconventional. Uncouth. Unkempt. All are accurate adjectives for the worst thing to happen to the graphics industry since Execute Buffers. A master of GPU arcana, lore, and the occult, he spends his days at NVIDIA crafting increasingly ingeniously nefarious rendering techniques, imbuing next-generation architectures with unholy energies, worshipping the Dark Lord, and kicking puppies.



***Peter Kipfer, Technische Universität München***

Peter Kipfer is a postdoctoral researcher in the Computer Graphics and Visualization Group at the Technische Universität München. He received his Ph.D. from the University of Erlangen-Nürnberg in 2003 for his work on parallel and distributed visualization and rendering within the KONWIHR supercomputing project. His current research focuses on general-purpose computing and geometry processing on the GPU.



**Joe Kniss, University of Utah**

Joe Kniss is a Ph.D. student in computer science at the University of Utah, where he is a member of the Scientific Computing and Imaging Institute. His research interests include nonpolygonal rendering, light transport in participating media, user-interface design, and all things GPU. He is a Department of Energy High-Performance Computer Science graduate fellow.



**Craig Kolb, NVIDIA Corporation**

Craig Kolb has been interested in computer graphics since he began writing games on his high school's sub-megaflop PDP-11. He received a B.A. and an M.Sc. from Princeton, where he wrote the first version of rayshade, a popular ray tracer, as part of his senior thesis. He spent the 1990s waiting for frames to render: first as a research assistant to Benoit Mandelbrot at Yale, then as a Ph.D. candidate researching camera and rendering systems at Princeton and Stanford, and later as head of rendering development at Pixar Animation Studios. In 2000 he cofounded Exluna and now works in the Software Architecture group at NVIDIA finding novel ways to push multi-gigaflop GPUs to their limits.



**Jens Krüger, Technische Universität München**

Jens Krüger is a Ph.D. student in the Computer Graphics and Visualization Group at the Technische Universität München. Jens's current research focuses on GPU solutions to numerical problems, often arising in physically based simulations. He has published papers on GPU programming at conferences such as ACM SIGGRAPH and IEEE Visualization. In 2004 he received an ATI Fellowship, which honors outstanding graduate students in areas related to computer graphics and graphics systems.



**Yuri Kryachko, 1C:Maddox Games**

Yuri Kryachko is the 3D graphics and effects programmer on *IL-2 Sturmovik*, *WW2*, *IL-2 Sturmovik: Forgotten Battles*, *AEP*, and *Pacific Fighters*. He has been at Maddox Games since 1996, and he's been playing and creating PC games since writing his first 2D game in 1987. He received an M.S. from the department of applied mathematics of the Moscow State Engineering Physics Institute (Technical University). Previous game projects include *City3D-Drive Simulator (ELF)* in 1995 and *Helicopter Simulator* from 1995 to 1996.



**Sylvain Lefebvre, GRAVIR/IMAG-INRIA**

Sylvain Lefebvre is a final-year Ph.D. student at INRIA in Grenoble, France. He received an M.S. in computer science from the INPG University, Grenoble, in 2001. His research focuses on developing new texturing methods for creating, storing, and rendering highly detailed textures for real-time applications. Recently he has worked on landscape texturing, direct painting on meshes, and the progressive loading of texture maps. He is also interested in many aspects of game programming.



***Aaron Lefohn, University of California, Davis***

Aaron Lefohn is a Ph.D. student in the computer science department at the University of California, Davis, and a graphics software engineer at Pixar Animation Studios. His current research focuses on data-parallel data structures and programming models and their application to high-quality interactive rendering. Aaron completed his M.S. in computer science at the University of Utah in 2003; he received an M.S. in theoretical chemistry from the University of Utah in 2001 and a B.A. in chemistry from Whitman College in 1997. Aaron is a National Science Foundation graduate fellow in computer science.



***Martin-Karl Lefrançois, mental images***

Martin-Karl Lefrançois is senior graphics software engineer at mental images in Berlin, maker of the mental ray renderer and other graphics software products. Under his lead, his team at mental images delivered automatic GPU support in mental ray 3.3 and is responsible for GPU acceleration support in all mental images products. After graduating with a degree in computer science and mathematics from the University of Sherbrooke in Quebec, he worked as a graphics developer for nearly ten years at Softimage in Montreal and Tokyo before leading the core game engine team at A2M.



***Wei Li, Siemens Corporate Research***

Wei Li is a research scientist at Siemens Corporate Research in Princeton, New Jersey. His current research focuses on texture-based volume rendering and general-purpose computation on the GPU. He received an M.S. and a Ph.D. in computer science from Stony Brook University in 2001 and 2004, respectively. He also received a B.S. and an M.S. in electrical engineering from Xi'an Jiaotong University in China in 1992 and 1995, respectively.



***Donald Liu, Siemens Medical Solutions USA***

Donald Liu received a B.Eng. from Qinghua University in Beijing in 1984; he received an M.Eng. and a D.Eng. from the University of Tokyo in 1988 and 1991, respectively. He was an assistant professor at Sophia University in Tokyo for a year before joining the faculty of the electrical engineering department at the University of Rochester in New York. Since 1997 he has been with the Siemens Medical Solutions Ultrasound Group in Issaquah, Washington, where he is currently a senior staff systems engineer. He is a senior member of IEEE and a recipient of the National Institutes of Health FIRST award. His research interests include analysis and correction of ultrasonic wavefront distortion, efficient image formation, and digital signal processing.



***Paulius Micikevicius, Armstrong Atlantic State University***

Paulius Micikevicius received a B.S. in computer science from Midwestern State University in 1998 and a Ph.D. in computer science from the University of Central Florida (UCF) in 2002. He is an assistant professor at Armstrong Atlantic State University in Savannah, Georgia, as well as a research associate at the Media Convergence Laboratory at UCF. His research interests include real-time graphics, graphics processing for mixed/augmented reality experiences, and parallel computing and graph theory.



***Fabrice Neyret, GRAVIR/IMAG-INRIA***

Fabrice Neyret has worked on the R&D teams of several companies, including TDI in Paris and Alias|Wavefront in Toronto. He received a master's degree in applied mathematics, an engineering degree from Telecom Paris (ENST), and a Ph.D. in computer science. He did his postdoctoral work at the University of Toronto. He is currently a full-time CNRS researcher at GRAVIR lab in Grenoble, France. His research interests include natural phenomena (especially water and clouds), highly complex scenes (such as landscapes covered by forest), textures, local illumination and shaders, alternate representations (such as volumetric textures), phenomenological approaches, and, of course, getting the most out of GPUs. He is also involved in pedagogic software (such as MobiNet), scientific popularization, and writing short stories.



***Hubert Nguyen, NVIDIA Corporation***

Hubert Nguyen is a software engineer on the NVIDIA Demo Team. He spends his time searching for novel effects that show off the features of NVIDIA's latest GPUs. He most recently worked on "Nalu," NVIDIA's mermaid. Before joining NVIDIA, Hubert was at 3dfx interactive, the creators of Voodoo Graphics. Prior to 3dfx, Hubert was part of the R&D department of Cryo Interactive in Paris. Hubert started to develop 3D graphics programs when he was involved in the European demo scene. He holds a degree in computer science.



***Marc Nienhaus, University of Potsdam, Hasso-Plattner-Institute***

Marc Nienhaus is a Ph.D. candidate at the Hasso-Plattner-Institute of the University of Potsdam. He studied mathematics and computer science and has worked as a software engineer focusing on computer graphics. His research interests include real-time rendering, nonphotorealistic rendering, and depiction strategies for symbolizing dynamics.



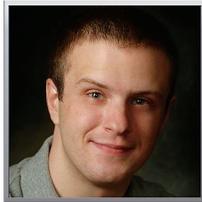
**Justin Novosad, *discreet***

Justin Novosad is a software developer for *discreet* (a division of Autodesk). He received a bachelor's degree in computer engineering and a master's degree in medical imaging, both from École Polytechnique de Montréal, in 2001 and 2003, respectively. Justin is a member of the "effects" team at *discreet*, working on the *Inferno*, *Flame*, and *Flint* visual effects and digital compositing products. Before joining *discreet* in 2004, he was a research engineer at Sainte-Justine Hospital in Montreal, where he developed computer vision algorithms for the study of spinal deformities from X-ray data. His fields of interest include computer graphics, computer vision, machine learning, image processing, and applied mathematics. He is a cofounder of the ACM SIGGRAPH Montreal Professional Chapter.



**Lennart Ohlsson, *Lund University***

Lennart Ohlsson is an assistant professor in the computer science department at Lund University. His primary research interest is software architecture for computer graphics.



**Jon Olick, *2015***

Jon Olick has been creating games since age 11. He is a senior software engineer specializing in graphics technology and engine design at 2015, where he has worked on titles such as *Medal of Honor: Allied Assault* and *Men of Valor: Vietnam*. He is now developing engine technology for future products.



**Sean O'Neil**

Sean O'Neil graduated from Georgia Tech in 1995 with a B.S. in computer science. He lives in Atlanta with his wife and two wonderful children. All of his full-time positions have been in the telecommunications industry, so for now graphics programming is just a hobby.



**John Owens, *University of California, Davis***

John Owens is an assistant professor of electrical and computer engineering at the University of California, Davis, where he leads research projects in graphics hardware/software and wireless sensor networks. Prior to his appointment at Davis, he earned an M.S. and a Ph.D. in electrical engineering from Stanford University in 1997 and 2002, respectively. At Stanford he was an architect of the *Imagine Stream Processor* and a member of the *Concurrent VLSI Architecture Group* and the *Computer Graphics Laboratory*. He received a B.S. in electrical engineering and computer science from the University of California, Berkeley, in 1995.



**Kurt Pelzer, Piranha Bytes**

Kurt Pelzer is a senior software engineer at Piranha Bytes, where he worked on the PC game *Gothic*, the top-selling *Gothic II* (awarded RPG of the Year in Germany during 2001 and 2002, respectively), and the add-on *Gothic II: The Night of the Raven*. Previously he was a senior programmer at Codecult and developed several real-time simulations and technology demos built on Codecult's 3D engine. Kurt has published in *GPU Gems*, *ShaderX2*, and *Game Programming Gems 4*.



**Matt Pharr, NVIDIA Corporation**

Matt Pharr is a senior software developer in the Software Architecture group at NVIDIA, where he works on Cg and interactive rendering techniques. He is coauthor, with Greg Humphreys, of *Physically Based Rendering: From Theory to Implementation*. Previously he was a cofounder of Exluna and a Ph.D. student in the Stanford Computer Graphics Lab, where he researched systems issues for rendering and theoretical foundations of rendering; he published a series of SIGGRAPH papers on these topics.



**Jeremy Selan, Sony Pictures Imageworks**

Jeremy Selan currently pioneers color and lighting tools at Sony Pictures Imageworks. His work has been utilized on numerous motion pictures, most recently on *Spider-Man 2*. Professionally, he maintains an active interest in colorimetry and digital cinema. He is a graduate of the Program of Computer Graphics and the School of Electrical and Computer Engineering at Cornell University. In his free time—drawn by a climate markedly superior to that of his hometown, Skokie, Illinois—Jeremy is an aspiring Santa Monica beach bum.



**Oles Shishkovtsov, GSC Game World**

Oles Shishkovtsov became interested in programming and graphics at age 13; by age 17 he had won two national competitions in programming and enrolled at the Junior Academy of Science in Ukraine. At 19 he started working for White Lynx as a software developer/graphics programmer, where he successfully completed three projects. Since 2000 he has worked for GSC Game World as an engine architect/team leader and has continued doing R&D in his free time. He has spent the last three years working on *S.T.A.L.K.E.R.: Shadows of Chernobyl*.



**Christian Sigg, ETH Zurich**

Christian Sigg received his degree in computational science and engineering from the Swiss Federal Institute of Technology Zurich. He became interested in computer graphics during a semester abroad at the University of Texas at Austin, where he worked on parallel volume rendering at the Computational Visualization Center. He is working on his Ph.D. at the ETH Zurich Computer Graphics Laboratory. His research interests lie in the area of algorithms for implicit surface representations using graphics hardware.



***Tiago Sousa, Crytek***

Tiago Sousa is a self-taught game and graphics programmer who has worked at Crytek as an R&D software engineer for the last two years. He has contributed to most of the special effects in Crytek's games. In 1999, before joining Crytek, he cofounded a pioneering game development team in Portugal and studied computer science at a local university. He spends most of his time researching real-time and non-real-time graphics and reading all kinds of technical books.



***Thilaka Sumanaweera, Siemens Medical Solutions USA***

Thilaka Sumanaweera has been having fun with first GL and then OpenGL since the late 1980s, creating 2, 3, and 4D applications in computer vision, image processing, and medical imaging. He received his Ph.D. in electrical engineering from Stanford University in 1992. He then joined the Radiological Sciences Laboratory at Stanford's Radiology Department as a postdoc and a research associate developing CT/MRI image fusion and image-guided neurosurgery. Currently he is a Fellow in the Siemens Medical Solutions Ultrasound Division, working in the areas of volume rendering, motion detection and compensation, and image segmentation. He holds 24 patents for techniques related to medical imaging and visualization, and he has published extensively in medical journals.



***Yury Uralsky, NVIDIA Corporation***

Yury Uralsky became interested in games and computer graphics when the ZX Spectrum 48K was a dream machine and writing software rasterizers in assembly language was fun. He received an M.S. in computer science from the Moscow State Technical University in 2001. He worked as a graphics engine programmer for Eagle Dynamics, creating graphics for the flight simulator *LockOn: Modern Air Combat*. He joined the NVIDIA Developer Technology team in March 2004 and enjoys pushing 3D graphics forward in the NVIDIA Moscow office.



***Pete Warden, Apple Computer***

Pete Warden has worked as a graphics engine programmer on PC, PSX, PS2, GameCube, and Xbox titles, specializing in low-level assembler and vector unit programming on the PS2. He has also published 45 open source video filters that run in a variety of real-time video applications on Windows, Linux, and OS X, including After Effects, and helped to create the Freeframe open plug-in standard. Pete is now part of the team working on Apple's Motion video effects package, a fully GPU-based image-processing application. He has written many of its original video filters and also works on the rendering engine.



**Li-Yi Wei, NVIDIA Corporation**

Li-Yi Wei is a 3D graphics architect at NVIDIA Corporation. He received a B.S. in electrical engineering from the National Taiwan University in 1993 and a Ph.D. in electrical engineering from Stanford University in 2001. He spends 1 percent of his time designing next-generation graphics hardware and the remaining 99 percent verifying that the design actually works. When not wreaking havoc on NVIDIA's chips, he enjoys researching various fields of computer graphics. He is a frequent contributor to SIGGRAPH and other academic conferences.



**Xiaoming Wei, Stony Brook University**

Xiaoming Wei is an assistant professor of computer science at Iona College in New Rochelle, New York. She received her Ph.D. in computer science from Stony Brook University in 2004. She received a B.Sc. from the Beijing University of Aeronautics and Astronautics in 1995 and an M.Sc. in computer science from Tsinghua University in Beijing in 1998. Her research interests include physically based modeling, natural phenomena modeling, and computer animation.



**Rüdiger Westermann, Technische Universität München**

Rüdiger Westermann studied computer science at the Technical University Darmstadt, Germany. He received a Ph.D. in computer science from the University of Dortmund, Germany. In 2002 he was appointed the chair of Computer Graphics and Visualization at the Technische Universität München. His research interests include general-purpose computing on GPUs, hardware-accelerated visualization and image synthesis, hierarchical methods in scientific visualization, volume rendering, flow visualization, and parallel graphics algorithms.



**Daniel Wexler, NVIDIA Corporation**

Daniel Wexler attended the University of California, Berkeley, where he studied with the graphics research group before leaving school to work at Sun Microsystems. He worked at Xaos Tools before joining the R&D team at Pacific Data Images (PDI) in 1995. After spending six years writing a new renderer and shading system for PDI, which was used on a variety of feature film projects including *Antz* and *Shrek*, he joined NVIDIA to work on hardware-based rendering systems with Larry Gritz and the rest of the NVIDIA architecture team.



**David Whatley, Simutronics Corporation**

David Whatley is president and CEO of Simutronics Corporation and a developer and publisher of online games. His passion for online gaming led him to found Simutronics in 1987, when he was 20 years old. David—chief designer and technology architect of most of the company's games—has won numerous awards, including Computer Gaming World's first Online Game of the Year award for *CyberStrike*. His current focus is on alternate techniques for more photorealistic rendering of 3D environments in games.



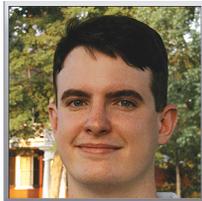
***Michael Wimmer, Vienna University of Technology***

Michael Wimmer is an assistant professor at the Institute of Computer Graphics and Algorithms of the Vienna University of Technology, where he received an M.Sc. in 1997 and a Ph.D. in 2001. His current research interests are real-time rendering, virtual and augmented reality, computer games, and real-time visualization of urban environments; he has coauthored several scientific papers in these fields. He also teaches courses on 3D computer games and real-time rendering.



***Matthias Wloka, NVIDIA Corporation***

Matthias Wloka is a software engineer in the Developer Technology group at NVIDIA. His primary responsibility is to collaborate with game developers to enhance image quality and graphics performance of their games; he is also a regular contributor at game developer conferences, such as GDC. Matthias's passion for computer gaming started at age 15 when he discovered that his school's Commodore PET 2001 computers could also play Black Jack. He started writing his own games soon thereafter and continues to use the latest graphics hardware to explore the limits of interactive real-time rendering. Before joining NVIDIA, Matthias was a game developer at GameFX/THQ. He received an M.Sc. in computer science from Brown University in 1990 and a B.Sc from Christian-Albrechts-University in Kiel, Germany, in 1987.



***Cliff Woolley, University of Virginia***

Cliff Woolley is a Ph.D. student in computer science at the University of Virginia. His research interests include interactive rendering techniques, sparse sample reconstruction, and general-purpose computation using programmable graphics hardware. He received an M.C.S. in computer graphics from the University of Virginia in 2003 and a B.A. in computer science and theater at Washington and Lee University in 1999.