Ulrich Neumann

Professor, Computer Science Department, University of Southern California
January 2022

Education

Ph.D. Computer Science, 1993, University of North Carolina at Chapel Hill
     Advisor: Prof. Henry Fuchs
     Dissertation: Parallel Volume Rendering

M.S. Computer Science, 1990, University of North Carolina at Chapel Hill

M.S. Electrical Engineering, 1979, SUNY at Buffalo

B.S. Electrical Engineering, 1976, SUNY at Buffalo

Academic Appointments:

Professor, Computer Science Department, USC Viterbi School of Engineering (2010)

Joint Appointment, Electrical Engineering-Systems, USC Viterbi School of Engineering (2002)

Associate Professor, Computer Science Department, USC Viterbi School of Engineering (2001)

Assistant Professor, Computer Science Dept., University of Southern California (1994)

Positions

Associate Director, ADE projects, USC/Chevron Center for Interactive Smart Oilfield Technologies (CiSOFT) (2010-2012)

Co-Founder and Manager, Sentinel AVE LLC, El Segundo, CA (2005-2012)

Associate Director of Research, Integrated Media Systems Center (IMSC) (2005-2010)

Member, Decision Review Board, USC/Chevron Center for Interactive Smart Oilfield Technologies (CiSOFT) (2003-2006)

Director, Integrated Media Systems Center (IMSC) (2001-2005)

Research Associate Director for Computer Interfaces, for the Integrated Media Systems Center (IMSC), an NSF Engineering Research Center (1996-2001)

Founder and Director of the USC Computer Graphics and Immersive Technologies Laboratory (CGIT) (1994) http://graphics.usc.edu

Senior Research Associate, Computer Science, UNC Chapel Hill (June 1993 to July 1994) Site-coordinator, NSF/ARPA Science and Technology Center for Computer Graphics and Scientific Visualization (with Caltech, The University of Utah, Cornell University, and Brown University)

Co-Founder and VP of Engineering, Creative Sciences Inc., Santa Ana, CA (1982 to 1985)

Awards

Ten-Year Technical Impact Award from the ACM International Conference on Multimodal Interfaces (Nov. 2014)

Charles Lee Powell Chair in Computer Science and Electrical Engineering, 2002-2005

USC Northrop Grumman Junior Faculty Research Award, 1999

NSF CAREER Award, 1995

Refereed Journal Publications

J1.   Qian-Yi Zhou and Ulrich Neumann, "Complete Residential Urban Area Reconstruction from Dense Aerial LiDAR Point Clouds," *Graphical Models*, Vol. 75, Issue 3, May 2013, pp. 118–125. Special issue on Computational Visual Media. Elsevier Inc.

J2.   Wei Guan, Suya You and Ulrich Neumann, "Efficient Matching and Mobile Augmented Reality," *ACM Transactions on Multimedia Computing, Communications and Applications (TOMCCAP),* Volume 8 Issue 3s, Article No. 47, September 2012.

J3.   Taehyun Rhee, J.P. Lewis, Ulrich Neumann, and Krishna Nayak, "Scan-Based Volume Animation Driven by Locally Adaptive Articulated Registrations," *IEEE Transactions on Visualization and Computer Graphics*, Vol. 17, No. 3, pp. 368-379, March 2011. (Selected for oral presentation at *IEEE VR 2011*, March 2011, Singapore.)

J4.   Q. Wang, J. Mooser, S. You, and U. Neumann, "Augmented Exhibitions Using Natural Features," *International Journal of Virtual Reality*, Dec. 2008.

J5.   T. Ju, Q. Y. Zhou, M.V.D. Panne, D. Cohen-Or and U. Neumann, "Reusable Skinning Templates Using Cage-based Deformations," *Proceedings of ACM SIGGRAPH ASIA 2008,* Singapore, Character animation II, Article No. 122, published as *ACM Transactions on Graphics (TOG),* Volume 27, Issue 5, December 2008.

J6.   Z. Deng and U. Neumann, "Expressive Speech Animation Synthesis with Phoneme-Level Controls," *Computer Graphics Forum (CGF)*, 27(6), September, 2008.

J7.   C. Busso, Z. Deng, M. Grimm, U. Neumann, and S. Narayanan, "Rigid Head Motion in Expressive Facial Animation: Analysis and Synthesis," *IEEE Transaction on Audio, Speech and Language Processing (TASLP)*, 15(3), pp. 1075-1086, March 2007.

J8.   Z. Deng, U. Neumann, J.P. Lewis, T.Y. Kim, M. Bulut, and S. Narayanan, "Expressive Facial Animation Synthesis by Learning Speech Co-Articulation and Expression Spaces", *IEEE Transaction on Visualization and Computer Graphics (TVCG)*, 12(6), pp. 1523-1534, Nov/Dec 2006.

J9.   T. Rhee, J.P. Lewis, U. Neumann, "Real-Time Weighted Pose-Space Deformation on the GPU," *Computer Graphics Forum*, Vol. 25, No. 3, (Eurographics 2006), pp. 439-448, Vienna, Austria, Sept. 2006.

J10.   C. Busso, Z. Deng, U. Neumann, S. Narayanan, "Natural Head Motion Synthesis driven by Acoustic Prosody Features," the *Journal of Computer Animation and Virtual Worlds*, Vol. 16, No. (3-4), pp. 283-290, July 2005, John Wiley Press. (special issue for **best papers** of IEEE Computer Animation and Social Agents 2005)

J11.   Z. Deng, J.P. Lewis, U. Neumann, "Automated Eye Movement using Texture Synthesis", *IEEE Computer Graphics & Applications*, Vol. 25, No. 2, pp. 24-30, March/April, 2005.

J12.   J.P.Lewis, R. Rosehnoltz, N. Fong, U. Neumann, "VisualIDs: Automatic Distinctive Icons for Desktop Interfaces," *ACM Transactions on Graphics (Proceedings of SIGGRAPH 2004)*, Vol. 23. No. 3, pp. 416–423, Los Angeles, CA, August 2004.

J13.   U. Neumann, S. You, J. Hu, I.O. Sebe, and B. Jiang, "Visualizing Reality in an Augmented Virtual Environment," *PRESENCE: Teleoperators and Virtual Environments* Vol. 13, No. 2, pp. 222-233, April 2004.

J14.   D. Fidaleo and U. Neumann, "Analysis of Co-Articulation Regions for Performance Driven Facial Animation," *Journal of Computer Animation and Virtual Worlds*, Vol. 15, No. 1, pp. 15-26, 2004, John Wiley Press.

J15.   R. Zimmermann, C. Kyriakakis, C. Shahabi, C. Papadopoulos, A. A. Sawchuk, U. Neumann, "The Remote Media Immersion System," *IEEE MultiMedia*, special issue on "Digital Media on Demand," Vol. 11, No. 2, pp. 48-57, April-June 2004.

J16.   J. Hu, S. You, U. Neumann, "Approaches to Large-Scale Urban Modeling," *IEEE Computer Graphics & Applications*, Vol. 23, No. 6, pp. 62-69, November 2003.

J17.   T.Y. Kim and U. Neumann, "Interactive Multiresolution Hair Modeling and Editing," *ACM Transactions on Graphics* and *Computer Graphics*, proceedings of *ACM SIGGRAPH 2002*, Vol 21, No. 3, pp. 620-629, San Antonio TX, July 2002.

J18.   J.Y. Noh and U. Neumann, "Expression Cloning," *Computer Graphics*, proceedings of *ACM SIGGRAPH 2001*, pp. 277-288, Los Angeles CA, August 2001.

J19.   Y. K. Cho and U. Neumann. "Multi-Ring Fiducial Systems for Scalable Fiducial-Tracking Augmented Reality," *PRESENCE: Teleoperators and Virtual Environments,* Vol. 10, No. 6, pp. 599-612, December 2001.

J20.   AA. Rizzo, U. Neumann, R. Enciso, D. Fidaleo, & JY. Noh. "Performance Driven Facial Animation: Basic Research On Human Judgments Of Emotional State In Facial Avatars," *CyberPsychology and Behavior*. Vol. 4. No. 4, pp. 471-487, 2001.

J21.   Yoon and U. Neumann. "Web-Based Remote Rendering with IBRAC: Image-Based Rendering Acceleration and Compression," *Computer Graphics Forum* (Eurographics 2000), Vol. 19, No. 3, pp. C321-C330, Interlaken, Switzerland, August 2000.

J22.   J.S. McGee, C. van der Zaag, J.G. Buckwalter, M. Thiebaux, A. Van Rooyen, U. Neumann, D. Sisemore, A.A. Rizzo, "Issues for the Assessment of Visuospatial Skills in Older Adults Using Virtual Environment Technology," *CyberPsychology & Behavior*. Vol. 3, No. 3, pp. 469-482, Jun 2000.

J23.   A.A. Rizzo, J.G. Buckwalter, T. Bowerly, C. Van Der Zaag, L. Humphrey, U. Neumann, C. Chua, C. Kyriakakis, A. Van Rooyen, D. Sisemore, "The Virtual Classroom: A Virtual Reality

Environment for the Assessment and Rehabilitation of Attention Deficits," *CyberPsychology & Behavior,* Vol. 3, No. 3, pp. 483-499, Jun 2000.

J24.   Yoon and U. Neumann. "IBRAC: Image-Based Rendering Acceleration and Compression," *Journal of High Performance Computer Graphics, Multimedia, and Visualization*, Jan. 2000.

J25.   R. Azuma, J. W. Lee, B. Jiang, J. Park, S. You, and U. Neumann. "Tracking in Unprepared Environments for Augmented Reality Systems," *Computers & Graphics* Vol. 23, No. 6, pp. 787-793*,* Dec. 1999.

J26.   S. You, U. Neumann, and R. Azuma. "Orientation Tracking for Outdoor Augmented Reality Registration," *IEEE Computer Graphics & Applications*, Vol. 19, No. 6, pp. 36-42, Nov. 1999.

J27.   U. Neumann, S. You. "Natural Feature Tracking for Augmented Reality," *IEEE Transactions on Multimedia*, Vol. 1, No. 1, pp. 53-64, March 1999.

J28.   P. Larson, A.A. Rizzo, J.G. Buckwalter, A. Van Rooyen, K. Kratz, U. Neumann, C. Kesselman, M. Thiebaux, and C. Van Der Zaag. "Gender Issues in the Application of a Virtual Environment Spatial Rotation Project," *CyberPsychology and Behavior*. Vol. 2, No. 2, pp. 113-124, 1999.

J29.   U. Neumann and J. Park. "Tracking for Augmented Reality on Wearable Computers," *Virtual Reality*, Vol. 3, No. 3, pp. 167-175, Springer-Verlag, London Ltd., 1998.

J30.   A.A. Rizzo, J.G. Buckwalter, U. Neumann, C. Kesselman, and M. Thiebaux. "Basic Issues in the Application of Virtual Reality for the Assessment and Rehabilitation of Cognitive Impairments and Functional Disabilities," *CyberPsychology and Behavior,* Vol. 1, No. 1, pp. 59-78, 1998.

J31.   A.A. Rizzo, J.G. Buckwalter, U. Neumann, C. Kesselman, M. Thiebaux, P. Larson, and A. Van Rooyan. "The Virtual Reality Mental Rotation/Spatial Skills Project: Preliminary findings," *CyberPsychology and Behavior*, Vol. 1. No. 2, pp. 107-113, 1998.

J32.   A.A. Rizzo, J.G. Buckwalter, and U. Neumann. "Virtual Reality and Cognitive Rehabilitation," *The Journal of Head Trauma Rehabilitation,* Vol. 12, No. 6, pp. 1-15, 1997.

J33.   M. Bajura and U. Neumann. "Closed-Loop Tracking for Augmented-Reality Systems," *IEEE Computer Graphics & Applications*, Vol. 15, No. 5, pp. 52-60, September 1995.

J34.   U. Neumann "Communication Costs for Parallel Volume-Rendering Algorithms," *IEEE Computer Graphics & Applications*, 14(4):49-58, July 1994. (IF: 2.124) Reprinted in ACM Siggraph'94 course notes: "Advanced Techniques for Scientific Visualization."

DOCKET ALARM

Explore Litigation Insights

Docket Alarm provides insights to develop a more informed litigation strategy and the peace of mind of knowing you're on top of things.

Real-Time Litigation Alerts

Keep your litigation team up-to-date with **real-time alerts** and advanced team management tools built for the enterprise, all while greatly reducing PACER spend.

Our comprehensive service means we can handle Federal, State, and Administrative courts across the country.

Advanced Docket Research

With over 230 million records, Docket Alarm's cloud-native docket research platform finds what other services can't. Coverage includes Federal, State, plus PTAB, TTAB, ITC and NLRB decisions, all in one place.

Identify arguments that have been successful in the past with full text, pinpoint searching. Link to case law cited within any court document via Fastcase.

Analytics At Your Fingertips

Learn what happened the last time a particular judge, opposing counsel or company faced cases similar to yours.

Advanced out-of-the-box PTAB and TTAB analytics are always at your fingertips.

API

Docket Alarm offers a powerful API (application programming interface) to developers that want to integrate case filings into their apps.

LAW FIRMS
Build custom dashboards for your attorneys and clients with live data direct from the court.

Automate many repetitive legal tasks like conflict checks, document management, and marketing.

FINANCIAL INSTITUTIONS
Litigation and bankruptcy checks for companies and debtors.

E-DISCOVERY AND LEGAL VENDORS
Sync your system to PACER to automate legal marketing.

fastcase
Smarter legal research.