

## JOHN C. HART, PH.D.

### PROFESSIONAL SUMMARY:

John C. Hart is an Professor in the Department of Computer Science at the University of Illinois, Urbana-Champaign where he studies computer graphics and computational topology. Prof. Hart is a past Editor-in-Chief of ACM Transactions on Graphics. He is a co-author of "Real-Time Shading" and a contributing author for "Texturing and Modeling: A Procedural Approach." He served from 1994-9 on the ACM SIGGRAPH Executive Committee, and is an Executive Producer of the documentary "The Story of Computer Graphics." Prof. Hart received his B.S. from Aurora University in 1987, and an M.S. (1989) and Ph.D. (1991) from the Electronic Visualization Laboratory at the University of Illinois at Chicago. He interned with Alan Norton at the IBM T.J. Watson Research Center in 1989 and with Pixel Machines at AT&T Bell Labs in 1990. He was a Postdoctoral Research Associate at the EVL and NCSA until 1992, and an Assistant then Associate Professor in the School of EECS at Washington State University until 2000.

### EDUCATION:

- 1991      Ph.D. Electrical Engineering and Computer Science Dept.  
University of Illinois at Chicago, 1991. Thesis title: ``Computer Display of Linear Fractal Surfaces." Advisor: Thomas A. DeFanti.
- 1989      M.S. EECS  
University of Illinois at Chicago  
Thesis title: ``Image Space Algorithms for Visualizing Quaternion Julia Sets." Advisor: Thomas A. DeFanti.
- 1987      B.S. College of Liberal Arts and Science, Aurora University  
Major: Computer Science. Minors: Mathematics, Physics, Sociology

### LITIGATION EXPERIENCE:

- 2015    2016    **Graphics Property Holdings** (formerlay SGI)  
Certain Computing or Graphics Systems, Components Thereof, and Vehicles Containing Same, US International Trade Commission Case #337-TA-984  
Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC  
**Testified to the International Trade Commission** on Claim Construction, and authored validity report.  
Settled.

- 2014 2015 **ZiiLabs (subsidiary of Creative Technology) v. Apple & Samsung**  
 Eastern District of Texas, Marshall Division, Case 2:14-cv- 00203, for Heim, Payne & Chorush LLP and Susman Godfrey LLP.  
 Prepared invalidity rebuttal report for four patents and damages report for nine patents, all on graphics hardware. **Deposed** over two sequential days on both reports.  
 Settled.
- 2013 2014 **Graphics Property Holdings (formerly SGI) v. Toshiba**  
 Certain Consumer Electronics with Display and Processing Capabilities, US International Trade Commission Case #337-TA-884  
 Mintz, Levin, Cohn, Ferris, Glovsky and Popeo  
 Graphics Hardware Expert on floating point rasterization. **Deposed** Feb. 2014.  
**Testified to the International Trade Commission** Apr. 2014.  
 Judgement for GPH
- 2010 **IP Innovation LLC and Technology Licensing Corp. v. Vizio and Microsoft Xbox**  
 Illinois Northern District Court (Eastern Division) Case #08-C-393  
 Sidley Austin LLP  
 Graphics Hardware Expert on deinterlacing  
 Prepared non-infringement rebuttal report and invalidity report.  
 Settled.
- 2008 **Jacobs v. NVIDIA & AMD (ATI)**  
 California Northern District Court Case # 3:07-cv-00302  
 Cooley Godward Kronish LLP, San Francisco  
 Provided expertise on graphics hardware and insight into the industry-wide process for the deployment of innovative features. Settled.
- 2006 - 2007 **Qualcomm v. Broadcom**  
 California Southern District Court Case #06-CV-0660  
 McAndrews, Held & Malloy, Ltd.  
 Graphics Hardware Expert on graphics accelerators  
 Settled.

**PROFESSIONAL EXPERIENCE:**

***Academia***

- **Executive Associate Dean.** University of Illinois at Urbana-Champaign, 2015- Present.
- **Associate Dean.** Graduate College, University of Illinois at Urbana-Champaign, 2014-. 2015.
- **Director for Graduate Studies.** Dept. of Computer Science. 2013.
- **Full Professor.** Dept. of Computer Science, University of Illinois, 2006-.
- **Associate Professor.** Dept. of Computer Science, University of Illinois, 2000-2006.

- **Associate Professor.** School of Electrical Engineering and Computer Science, Washington State University, 1998-2000.
- **Assistant Professor.** School of Electrical Engineering and Computer Science, Washington State University, 1992-1998.
- **Postdoctoral Research Associate.** Electronic Visualization Laboratory, University of Illinois at Chicago, and National Center for Supercomputing Applications, University of Illinois at Urbana-Champaign, 1991-1992.
- **Research Assistant.** Electronic Visualization Laboratory, Electrical Engineering and Computer Science Dept., University of Illinois at Chicago, 1988-1991.
- **Teaching Assistant.** Analog & digital circuit design courses, EECS Dept. University of Illinois at Chicago, 1987-1988.

### **Industry**

- **Intrinsic Medical Imaging LLC**, Bloomfield Hills, MI. Consultant, 2012-13. Mesh construction and simulation of coronary arterial blood flow.
- **Pratt & Whitney**, Hartford, CT. Consultant, 2011. Flux estimation in a lensed system.
- **Science Applications International Corp. (SAIC)**, Champaign, IL. Consultant, 2008. Ray-NURBS intersection.
- **Adobe Systems, Inc.**, Seattle, WA. Visiting Researcher, 2007. Project: Rendering meshed objects as stylized vector art.
- **The Teaching Company**, Chantilly, VA. Consultant, 2003. Produced custom educational video elements on the platonic solids.
- **Evans & Sutherland Computer Corp.**, Salt Lake City, Utah. Consultant, 1999-2000. Project: Design of the Evans & Sutherland Multi-Texturing Language.
- **Blue Sky | VIFX, Inc.**, Culver City, California. Consultant, 1998. Project: development of a custom software plug-in for the Houdini procedural animation package to polygonize a feature film villain modeled as a complex implicit surface.
- **Evans & Sutherland Computer Corp.**, (group formerly known as Silicon Reality, Inc.) Federal Way, Washington. Consultant, 1997-8. Project: design of graphics hardware to support antialiased procedural solid texturing.
- **Kleiser-Walczak Construction Company (a visual effects production company)**. Lennox, Massachusetts. Consultant, 1992-1993. Project: development of a new fractal-based video transition effect for an attraction at the Luxor Hotel, Las Vegas.
- **AT&T Pixel Machines**. AT&T Bell Laboratories, Holmdel, New Jersey. Summer Intern, 1990.
- **IBM T.J. Watson Research Center**. Hawthorne, New York. Summer Intern, 1989.

## HONORS & AWARDS:

- **Winner.** 2004 Fantasy Graphics League.
- **Listed.** *International Who's Who of Professionals*, 1997.
- **Champion.** SIGGRAPH Bowl II, SIGGRAPH 94. Captain of the EVL Alumni Team.
- **NSF Research Initiation Award.** "Modeling, Rendering and Animation of Implicit Surfaces," to support the generalization of methods developed for the visualization of fractal models to the more common implicit surfaces used in CAGD and entertainment, 1993.
- **First Runner-Up.** Truevision Videographics Competition, SIGGRAPH 90.
- **Graduate Fellowship.** Graduate College, University of Illinois at Chicago, 1990-1991.

## RESEARCH FUNDING:

### *From Industry*

- **Intel.** Intel Illinois Parallelism Center. \$2,500,000, Co-PI, 2011-2012.
- **Intel.** Leveraging Larrabee's Programmable Rasterization. \$130,000, 2009-2011.
- **Intel/Microsoft.** Universal Parallel Computing Research Center. \$18,000,000, Co-PI, 2008-2012.
- **NAVTEQ.** "Surface Classification and Reconstruction from LIDAR and images." \$60,000, 2008.
- **Thomas M. Siebel.** "MethMorph: Visual Simulation of Methamphetamine Addiction." \$35,000, Spring 2006.
- **NVidia Corp.** \$15,000 annually through the UIUC CS Affiliates Program, 2004 , and \$125,000 total to date in Ph.D. student fellowships (\$25K directly to the student to support one year of Ph.D. research): Nate Carr: 2002 & 2003, Jesse Hall: 2003 & 2004, Jared Hoberock: 2005 & 2008.
- **Microsoft Research.** "Precomputed Radiance Transfer Compression." \$15,000, Sep. 2002.
- **Evans & Sutherland Computer Corp.** "Real Time Procedural Solid Texturing." \$83,246, June 1999 May 2000.
- **Evans & Sutherland Computer Corp. and Washington Technology Center.** "APST: Computer Graphics Hardware for Antialiased Procedural Solid Texturing." \$77,089. Aug. 16, 1998 - Aug. 15, 1999.
- **Intel Natural Data Types Group.** "Procedural Modeling." \$43,000. Aug. 16, 1997 - Aug. 15, 1998.
- **Intel Natural Data Types Group.** "Recurrent Modeling -- Beyond Fractal Block Coding." (Co-PI with P. Flynn.) \$93,000. Apr. 1, 1995 - Mar. 31, 1997.

### *Government Agencies*

- **NSF.** #OCI-1216788 "Collaborative Research: Conceptualizing an Institute for Using Inter-Domain Abstractions to Support Inter-Disciplinary Applications" (Co-PI with David Padua and Philippe Geubelle, and other collaborators at Purdue and UT-Austin), \$135,000, Oct. 2012 indefinite.

- **NSF.** #EF-1115112 “Collaborative Research: Digitization TCN: InvertNet--An Integrative Platform for Research on Environmental Change, Species Discovery and Identification” (co-PI with Christopher Dietrich, Christopher Taylor, Nahil Sobh and Umberto Ravaioli), \$2,809,463, July 2011-June 2015.
- **NSF.** #OCI-1047764 “SI2-SSE: Collaborative Research: Lagrangian Coherent Structures for Accurate Flow Structure Analysis” (co-PI with Shawn Shadden) \$251,643, Sep. 2010 Aug. 2013.
- **NSF.** #IIS-0534485 “Analysis and Visualization of Complex Graphs” (co-PI with Michael Garland) \$300,000, Sep. 2006 Aug. 2009.
- **UIUC Critical Research Initiative.** “A New Approach to Bone Replacement.” (Co-PI with Russ Jamison, Michael Goldwasser, Ben Grosser, Matei Stroila and Amy Wagoner Johnson.) \$100,000, Sep. 2005 Aug. 2006.
- **NSF Small Grant for Exploratory Research.** “Application Directed Surface Parameterization.” \$97,868, Jan. 2005 Dec. 2005.
- **NSF/DARPA CARGO (Computational and Algorithmic Representations of Geometric Objects) Award.** “Robust Lagrangian Surface Propagation with Topological Control.” (Lead PI, with Michael Heath, Jim Jiao and John Sullivan), \$400,000, May 2003 May 2006.
- **NSF Information Technology Research.** #NSG-0219594 “Making 3D Visibility Practical.” (Co-PI with Steve LaValle, Jeff Erickson, Fredo Durand) \$499,923. Aug. 2002 Aug. 2005.
- **CNRS (Centre National de la Recherche Scientifique).** Supplement to “Making 3D Visibility Practical” to support UIUC INRIA collaboration, \$7,000, 2003-5.
- **NSF Information Technology Research.** #ACI-0113968 “Multipass Programming for Personal High-Performance Computing.” \$489,671, Aug. 2001 July 2006.
- **NSF Information Technology Research.** #ACI-0121288 “Procedural Representation and Visualization Enabling Personalized Computational Fluid Dynamics.” (Co-PI with David Ebert, David Marcum, Kelly Gaither and Penny Rheingans) \$3,989,773. Aug. 2001 July 2006.
- **NSF.** #NSG-9732379 “Applications of Morse Theory and Catastrophe Theory to Computer Graphics.” (Co-PI with R. Lewis.) \$220,541. Aug. 16, 1997 Aug. 15 2000.
- **NSF.** #CCR-9529809 “Recurrent Modeling.” (Co-PI with P. Flynn.) \$206,435. June 15, 1996 -May 31, 1999. Research Experience for Undergraduates Supplement: \$5,000. Jan. 1, 1998 - May. 31, 1999.
- **NSF Research Initiation Award.** #CCR-9309210 “Modeling, Rendering and Animation of Implicit Surfaces.” \$97,925. July 1, 1993 - June 30, 1996. Research Experience for Undergraduates Supplement: \$4,885. Jan. 1, 1995 - Dec. 31, 1995.

#### *Education Projects*

- **Nokia University Cooperation Funding.** “Teaching Mobile Augmented Reality on the Windows Phone Platform.” \$11,377.64. 2013.
- **UIUC College of Engineering Strategic Instructional Initiatives Program.** Improvement of key ME courses (Statics, Dynamics and Solid Mechanics), \$450,000, with MechSE Profs. Tortorelli, Dullerud Keane and West, 2012-2014.

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