

# Curriculum Vitæ

John C. Hart

Professor and Director of Online Programs, Dept. of Computer Science  
and  
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## ∞ Experience ∞

### Education

- **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.
- **M.S.** EECS Dept., University of Illinois at Chicago, 1989. Thesis title: "Image Space Algorithms for Visualizing Quaternion Julia Sets." Advisor: Thomas A. DeFanti.
- **B.S.** College of Liberal Arts and Science, Aurora University, 1987. Major: Computer Science.

### Academic Positions

- **Director of Online Programs**, Dept. of Computer Science, 2018-.
- **Director**, Master of Computer Science in Data Science program, 2016-2017.
- **Executive Associate Dean**. Graduate College, University of Illinois, 2015-.
- **Associate Dean**. Graduate College, University of Illinois, 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 Consulting

- **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.

## Expert Testimony

*(Only includes disclosed engagements.)*

- **Align Technology, Inc.**, US District Court for the District of Delaware, C.A. No. 17-1647-LPS-CJB. Mar. 2019 - Ongoing. Authored infringement report and reply report on validity. Deposed 19 June 2020.
- **Adsync Technologies**, Middle District of Florida, Orlando Division, Case 6:18-cv-1176-Orl-40TBS, Jun. 2019 – Jan. 2021. Declaration in defense of Amended Complaint from Adacel and in support of counter complaint from Adsync. Deposed 24 Jan 2020. Settled favorably for Adsync.
- **ZiiLabs** (subsidiary of Creative Technology), Certain Graphics Processors and Products Containing the Same, US International Trade Commission Case #337-TA-1099, for Pepper Hamilton LLP, Sep. 2017 – Feb. 2019. Deposed 12 Nov. 2018. Settled.
- **Samsung**. - FotoNation Ltd. et al. v. Samsung Electronics. Co., Ltd., et al., No. 2:17-cv-00669 (E.D. Tex.). Oct. 2017 – Jan. 2019. Settled.
- **Samsung**, Inter Partes Reviews for O'Melveny & Myers LLP of patents filed by Image Processing Technologies LLC: 6,717,518, 6,959,293, 7,650,015, 8,805,001, 8,983,134, 8,989,445, Oct. 2016 - Ongoing. Deposed Dec. 2017.
- **ZiiLabs** (subsidiary of Creative Technology), Certain Graphics Processors, DDR Memory Controllers, and Products Containing the Same, US International Trade Commission Case #337-TA-1037, for Pepper

Hamilton LLP, Sep. 2016 – July 2017. Testified to the International Trade Commission for Markman hearing. Settled.

- **Advanced Silicon Technology**, Certain Computing or Graphics Systems, Components Thereof, and Vehicles Containing Same, US International Trade Commission Case #337-TA-984, for Mintz, Levin, Cohn, Ferris, Glovsky and Popeo PC, Aug. 2015 – Aug. 2016. Testified to the International Trade Commission for Markman hearing and authored validity report. Written declarations submitted for IPR2016-00894, -00897 and 01060). All settled.
- **ZiiLabs** (subsidiary of Creative Technology), Eastern District of Texas, Marshall Division, Case 2:14-cv-00203, for Heim, Payne & Chorush LLP and Susman Godfrey LLP. Sep. 2014 – Dec. 2015. 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.
- **Graphics Property Holdings** (formerly SGI), Certain Consumer Electronics with Display and Processing Capabilities, US International Trade Commission Case #337-TA-884, for Mintz, Levin, Cohn, Ferris, Glovsky and Popeo . Graphics hardware expert on floating point rasterization, Authored report on patent validity. Deposed Feb. 2014. Testified to the International Trade Commission Apr. 2014. Judgement for GPH.
- **Microsoft Xbox**, Illinois Northern District Court (Eastern Division) Case #08-C-393, for Sidley Austin LLP. Dec. 2009 – May 2010. Prepared non-infringement rebuttal report and invalidity report. Settled.
- **NVIDIA & AMD (ATI)**, California Northern District Court Case # 3:07-cv-00302, for Cooley Godward Kronish LLP. July 2008 – Sep. 2008. Provided expertise on graphics hardware and insight into the industry-wide process for the deployment of innovative features. Settled.
- **Broadcom**, California Southern District Court Case #06-CV-0660, for McAndrews, Held & Malloy, Ltd, Dec. 2006 – Mar. 2007. Settled.

## Awards and Honors

- **Fellow**. Academic Leadership Program, Big Ten Academic Alliance, 2016-2017.
- **Outstanding Advisor**. College of Engineering, 2010 and 2015.
- **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

- **Caterpillar**, through the **Digital Manufacturing & Design Innovation Institute**. \$410,000, Co-PI with Placid Ferreira and Shiv Kapoor.
- **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.

## From Government Agencies

- **NSF**. #OAC-1550554 "SI2-SSI: Collaborative Research: ParaTreet: Parallel Software for Spatial Trees in Simulation & Analysis" (co-PI with Laxmikant Kale), \$170,000, Sep. 2016 – Aug. 2018.
- **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 – Sep. 2016.
- **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 Ravaoli), \$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.
- **NSF Special Project.** #EIA-9911033 “The Story of Computer Graphics Documentary Project.” \$48,000. Sept. 15, 1999 – Aug. 31, 2000.

## Equipment Grants and Donations

- **Nokia.** Two Velodyne LIDAR scanners, 2013.
- **NVidia.** K20 graphics card, 2012.
- **Intel.** Dell XPS 12, \$1,000, 2012.
- **Intel.** Two Knights Ferry development workstations, \$4,940, 2009.
- **NVidia.** Various graphics cards, 2002-4.
- **ATI.** One graphics card, 2002.

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