Rich Gossweiler

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Summary

HCI, UX, front-end, systems architect, tech lead, project lead, researcher. I enjoy designing and building innovative systems and leading small teams. I've worked at google, at NASA on a Mars mission, at a successful start-up, Xerox PARC, and SGI (see also http://www.richgossweiler.com or https://en.wikipedia.org/wiki/Rich_Gossweiler)

Principal scientist, technical lead, team leader, system architect, experience designer, and front-end engineer for over ten years. Most of my career as been working on web-based, contextual, and collaborative systems. My Ph.D. is in perception-based, time-critical 3D graphics.

Worked in top research institutes and in top engineering industries. Experience includes engineering at a successful start-up, working as a principal scientist at NASA on a Mars mission, performing advanced research at Xerox PARC, innovating and engineering for over 8+ years as a senior researcher at Google.

Designed, led, and implemented several software systems for a broad range of product domains including interactive 3D graphics (VR, AR, Glass, information visualization), mobile, television, travel, retail, and multi-person, interactive, public displays.

Work History

You can also visit my projects page for more details.

Tableau (2015 - 2017): ***senior research scientist***

mobile-first, statistics-based data visualization platform with Stats VP Leland Wilkinson
web-based component architecture for data cleaning, analytics, and data visualization
interactive, modular, extensible tool for binning and visualizing data holodeck interactive large display with support for gestures, voice, multi-person interaction web-based, GPU animation platform
Innovating and implementing desktop, browser, and mobile data visualization systems.

Google (2005 - 2014): ***mad scientist, technical lead, front end engineer***

large, multi-person, multi-modal, information display - led the design, research development, and engineering deployment of a large, depth-sensing, interactive, multi-person display system

- designed and prototyped in research, presented at a Google research consortium
- joined knowledge team, migrated and engineered to interact with real time news
- implemented and deployed in-house, 24/7
- presented to all of Google at a company-wide engineering all-hands

innovative UX and recommendation system for YouTube television - co-developed, published, and helped deploy listings recommendation system and remote control interaction experience. Significant improvment in speed and experience when entering searches from a remote control.

argos - built a new platform and model for rapid application development on Android devices

- led a small team of researchers
- developed platform, applications and API
- integrated 2D (web), 3D (openGL) and realtime (camera) information into single model
- supported external sensor extensions
- published in IEEE Pervasive Computing
- presented at Google research consortium
- presented to Andy Rubin and senior staff

gulliver - co-developed collaborative, mobile travel application. developed and tested in research, deployed with engineering team. Worked with Lonely Planet partnership for content.

Google I/O 2011 - worked with vision researchers and Android team on developing face-tracking applications for mobile devices (using the GPU). Team presented platform to Larry, Sergey, Andy, senior staff to be integrated into Android core. Applications were presented at Google I/O Android keynote.

world-wide tv listings - Co-tech lead, lead on interaction and design of a world-scale television guide. Allowed millions of viewers all over the planet to explore and interact with listings and related information.

Smaller initiatives:

- watch interfaces with Android
- security: a novel CAPTCHA system (published)
- sketch-up team on a 3D warehouse interactive model catalog
- Google production code reviewer for JavaScript

HP Labs (2003 - 2005): *research scientist*

CustomTV - part of a team that designed and developed a way to create personal television channels. A channel was a streaming search result (e.g. "news", "wearables", "my vacation"), browsed with a remote control.

- worked with USC school of film and television
- implemented the design
- presented at CES HP keynote

Plog- a mobile phone image sharing and storytelling platform developed when cameras were first integrated with cell phones. Images were clustered on the server into stories and were shared to desktops, tvs, and printers as postcard collage.

Plog News - an automatic newspaper generated based on determinining news-worthiness from plog pictures clustered in time and location.

Media2Go - mobile interaction with public displays via bluetooth. People could walk up to digital posters and get information, coupons, and video trailers beamed to their phones.

Principal Investigator - University of California, Berkeley Industry Collaboration - worked with HP and Berkeley on funding and sharing innovations.

NASA Ames (2002 - 2003): *principal research scientist*

MERBoard - a collaborative system of large touchscreen displays designed, developed and deployed for the Mars Exploration Rover (MER) mission. Multiple publications.

AdSpace Networks (acquired start-up) (2001 - 2002): *senior software engineer*

CoolSign Network - complex software system that delivers and manages digital assets to large digital signs.

- ad selling modeled after television auctions
- network included theatre chains, shopping malls, Las Vegas signs
- mixed real time information, entertainment, advertising

IBM Almaden Research (2000 - 2001): *research scientist and systems developer*

BlueBoard - co-designed and developed a web-based, in situ, easy-to-use collaboration system. Allowed people to easily hold meetings, retain state, share to other boards and external devices.

- presented to the CEO of IBM
- deployed at various IBM locations for senior executives around the world
- basis for a system used by NASA

- multiple publications

DSpace - project lead for a system supporting real-time, distributed user interfaces on the internet. The toolkit provided developers with an easy way to create distributed widgets that could react to digital and physical sensors. Based on a Gelernter tuple model.

Xerox PARC (1997 - 2000): ***research scientist***

Side Impact - a modified browser with a side tray that reacted to the pages you visited, could store gathered information, present enhanced interfaces for the page.

ConeGraph - developed a 3D widget for simultaneously viewing hierarchy and linkage structures.

Grid - developed a PC-based, interactive 3D graphics infrastructure and API used for information visualization.

Bookplex I and II - developed an interactive 3D graphics application allowing users to read a scanned book plus all of its references online, perform queries and recommendations on the Bookplex.

Penguin Portfolio - worked with Bernardo Huberman developing an economics-based model for managing graphics resources, treating objects as stocks with risk-reward rendering characteristics.

NavCards - developed a project integrating a digital 3D world with physical RF tags to navigate three-dimensional spaces.

Silicon Graphics Inc. (SGI) (1995 - 1997): ***3D graphics engineer***

CosmoWorlds - part of a large engineering team. Helped produce an interactive 3D graphics modeling system used to create virtual worlds on the web.

Contributed to the VRML specification.

Education

Ph.D. - University of Virginia (1996)

Perception-Based Time Critical Rendering

improved rendering rates in virtual environments using app-independent, visual perception techniques
developed DIVER (distributed VR platform), a basis for Alice
developed a virtual reality lab for UVa
conducted and published psychology perception experiments using virtual environments
Randy Pausch's first Ph.D. student

Master of Computer Science, minor mathematics - University of Virginia (1990)

Application Independent Object Selection from Multimodal Input

Combined probabilistic input from voice and gesture to recommend selection results

Papers and Talks

Perceiving geographical slant

Dennis Proffitt, Mukul Bhalla, Rich Gossweiler, J. Midgett - Psychonomic Bulletin & Review, 1995, pp. 409-428.

Alice: Rapid prototyping system for virtual reality

Randy Pausch, Tommy Burnette, A.C. Capeheart, Matthew Conway, Dennis Cosgrove, Rob DeLine, Jim Durbin, Rich Gossweiler, Shuichi Koga, and Jeff White, IEEE Computer Graphics and Applications 15(3), 1995, 8-11.

An Introductory Tutorial for Developing Multi-User Virtual Environments

Rich Gossweiler, Robert J. Laferriere, Michael L. Keller, and Randy Pausch. "An introductory tutorial for developing multiuser virtual environments." Presence 3, no. 4 (1994): 255-264.

On the design of personal and communal large information scale appliances

Daniel Russell, Rich Gossweiler, Ubicomp 2001: Ubiquitous Computing, pp. 354-361, Springer Berlin Heidelberg, 2001.

Distributed and Disappearing User Interfaces in Ubiquitous Computing

Beverly Harrison, Rich Gossweiler, SIGCHI 2001 Workshop. 2001.

What's up CAPTCHA?: a CAPTCHA based on image orientation

Rich Gossweiler, Maryam Kamvar, Shumeet Baluja, proceedings of the 18th international conference on World wide web, pp. 841-850, ACM, 2009.

Enhancing a digital book with a reading recommender

Allison Woodruff, Rich Gossweiler, James Pitkow, Ed H. Chi, and Stuart K. Card, proceedings of the SIGCHI conference on Human factors in computing systems, pp. 153-160, ACM, 2000.

Visualizing the evolution of web ecologies

Ed Chi, James Pitkow, Jock Mackinlay, Peter Pirolli, Rich Gossweiler, and Stuart K. Card, Proceedings of the SIGCHI conference on Human factors in computing systems, pp. 400-407. ACM Press/Addison-Wesley Publishing Co., 1998.

Alice: A Rapid Prototyping System for Building Virtual Environments

Matthew Conway, Randy Pausch, Rich Gossweiler, Tommy Burnette, Conference companion on Human factors in computing systems. pp 295-296, ACM, 1994.

Alice: Lessons Learned from Building a 3D System for Novices

Matthew Conway, Steve Audia, Tommy Burnette, Dennis Cosgrove, and Kevin Christiansen, Rob Deline, Jim Durbin, Rich Gossweiler, Shuichi Koga, Chris Long, Beth Mallory, Steve Miale, Kristen Monkaitis, James Patten, Jeff Pierce, Joe Shochet, David Staack, Brian Stearns, Richard Stoakley, Chris Sturgill, John Viega, Jeff White, George Williams, Proceedings of the SIGCHI conference on Human factors in computing systems, pp. 486-493. ACM, 2000.

DIVER: a Distributed Virtual Environment Besearch Platform

Rich Gossweiler, Chris Long, Shuichi Koga, and Randy Pausch. In Virtual Reality, 1993. Proceedings., IEEE 1993 Symposium on Research Frontiers in Virtual Reality, pp. 10-15. IEEE, 1993.

NASA's MERBoard

Jay Trimble, Roxana Wales, Rich Gossweiler. In Public and Situated Displays, pp. 18-44. Springer Netherlands, 2003.

NASA position paper for the cscw 2002 workshop on public, community and situated displays: MERBoard

Jay Trimble, Roxana Wales, Rich Gossweiler, 2002 Conference on Computer Supported Cooperative Work, 2002.

ContentCascade incremental content exchange between public displays and personal devices

Himanshu Raj, Rich Gossweiler, and Dejan Milojicic, Mobile and Ubiquitous Systems: Networking and Services, pp. 374-381, IEEE, 2004.

Content Exchange Appliances

Dejan Milojicic, John Ankcorn, Rich Gossweiler, Jim Rowson, Larry Rudolph, Sonia Garg, Franklin Reynolds, Rajnish Kumar, and Himanshu Raj, HPL-2003-139, 2003.

PLOG: Easily Create Digital Picture Stories Through Cell Phone Cameras.
R Gossweiler, J Tyler - IWUC, 2004 - hpl.hp.com

SketchUp: An Easy-to-Use 3D Design Tool that Integrates with Google Earth
Rich Gossweiler, Mark Limber. In Adjunct Proceedings of the 19th annual ACM Symposium on User Interface Software and Technology (UIST06), 19, p. 3, 2006.

Alice and Diver: A software architecture for building environments.
Randy Pausch, Matthew Conway, Robert DeLine, Rich Gossweiler, and Steve Miale, INTERACT'93 and CHI'93 Conference Companion on Human Factors in Computing Systems, pp. 13-14. ACM, 1993.

Argos: Building a Web-Centric Application Platform on Top of Android
Rich Gossweiler, Colin McDonough, James Lin, and Roy Want

A System for Application Independent Time Critical Rendering
Rich Gossweiler, ACM, 1994.

Amortizing 3D Graphics Optimization Across Multiple Frames
Jim Durbin, Rich Gossweiler, and Randy Pausch. "Amortizing 3D graphics optimization across multiple frames." In Proceedings of the 8th annual ACM symposium on User interface and software technology, pp. 13-19. ACM, 1995.

Principles of Visual Perception and Its Applications in Computer Graphics
Victoria Interrante, Penny Rheingans, James Ferwerda, Rich Gossweiler, and Toms Filsinger, SIGGRAPH 97 Course Notes 33.

UserVerse: Application-Independent Object Selection Using Inaccurate Multi-Modal Input
Randy Pausch, Rich Gossweiler, Multimedia interface design, pp. 139-145, ACM, 1992.
also as a chapter in *Multimedia interface design*, Meera Blattner, Roger Dannenberg, Addison-Wesley, April 1992.

PHIZ: Discovering TVs Long Tail through a Channel-Centric Model
James Rowson, Rich Gossweiler, Kurt MacDonald, 3rd European Conference on Interactive Television, EuroITV 2005, Aalborg University, Denmark, 2005.

Google TV search: dual-wielding search and discovery in a large-scale product
Manish Patel, Rich Gossweiler, Mehran Sahami, John Blackburn, David Brown, and Andrea Knight, proceedings of the 1st international conference on Designing interactive user experiences for TV and video, pp. 95-104. ACM, 2008.

Enabling informal communication of digital stories
Debaty, Philippe, Patrick Goddi, Rich Gossweiler, Rakhi Rajani, Alex Vorbau, and Josh Tyler, HPL-2004-180, 2004. 2004 - hpl.hp.com

QuickSuggest: character prediction on web appliances
Ulas Gargi, Rich Gossweiler, proceedings of the 19th international conference on World wide web, pp. 1249-1252. ACM, 2010.

Stanford Talk on Argos Platform for Android (2/6/2013)

USC Interactive Media and Games talk on (1/31/2007)

USC Cinematic Arts talk on Collaborative Systems(1/26/2011)

Patents

US20150156154 - Storage and retrieval of electronic messages using linked resources
WO2013082311A1 - Contactless Payment System Providing Supplemental Content...
WO2012154832A3 - Object Tracking
CA2685577A1 - Hiding portions of display content
WO2008121967A3 - Interactive media display across devices
WO2008134749A3 and CA2685419A1 - Program guide user interface
WO2008134742A1 and CA2685566A1 - Customizable media channels
CA2719138A1 - Lightweight three-dimensional display
US20130163390A1 - Smart-watch including flip up display
WO2011056610A3 - Predictive text entry for input devices
US8368723B1 - User input combination of touch and user position
US20130033366A1 - Method and system for providing haptic feedback of variable intensity
US20140007164A1 and US8640167B2 - System for displaying and searching multimedia events...
US8542251B1 - Access using image-based manipulation
CA2719141A1 - File access via conduit application
CA2428678C - A system for the simultaneous display and manipulation of hierarchical and non-hierarchical data
US8572649B1 - Electronic program guide presentation
US8640167B2 - System and method for displaying multimedia events scheduling information
US8522281B1 - Head end generalization
US8542251B1 - Access using image-based manipulation
US8533761B1 - Aggregating media information
EP1816553B1 - Systems...for the display and operation of virtual three-dimensional books
US8624836B1 - Gesture-based small device input
US8484192B1 - Media search broadening
US8612767B2 - Obscuring an accelerometer signal
US8504008B1 - Virtual control panels using short-range communication
US8488912B2 - Systems and methods for socially-based correction of tilted images
US8392986B1 - Evaluating text-based access strings
US8606933B1 - Selective pairing of devices using short-range wireless communication
US8467270B2 - Smart-watch with user interface features
US20130016129A1 - Region-Specific User Input
US6573916 - Navigation of rendered virtual environments using physical tags
WO2005076482A1 and US20060031517A1 - Information transfer system and method
US8291454B2 - System and method for downloading multimedia events scheduling information for display
US20130113760 - Techniques for providing localized tactile feedback via an electro-acoustic touch display...
US20130222743A1 - Privacy display
US8255953B1 - Arrangement of content within a custom television channel
CA2816842A1 and EP2635951A1 - Social aspects of media guides
WO2008134736A1 - Momentary electronic program guide

US20050225647A1 - Method and system of creating photo vignettes
WO2008134373A1 - Virtual channels
US7089288B2 - Interactive context preserved navigation of graphical data sets using multiple physical tags
US6400372B1 - Methods for selecting levels of detail for objects having multi-resolution models...
US20080270395A1 - RelevanceBar for Content Listings
US20080244681A1 - Conversion of Portable Program Modules for Constrained Displays
US7379078B1 - Controlling text symbol display size on a display using a remote control device
US6856313B2 - System for the simultaneous display and manipulation of hierarchical and non-hierarchical data
US6422474B1 - N-space indexing of digital data representations using physical tags
US6441817B1 - Methods for performing z-buffer granularity depth calibration in graphics displays of 3D scenes
US7069518B2 - Indexing methods, systems...for virtual three-dimensional books
US7248269B2 - Magnification methods, systems...for virtual three-dimensional books
US7917508B1 - Image repository for human interaction proofs
US6952806B1 - Medium containing information gathered from material...for displaying the information
US20050151849A1 - Method and system for image driven clock synchronization
US8725113 - User proximity control of devices
US8531551B2 - System and method for image sharing
US20130287269A1 - Creating social network groups
US8258390B1 - System and method for dynamic, feature-based playlist generation
WO2013074140A1 - Methods and systems to determine a context of a device
US8649563 - Object tracking
US8693807 - Systems and methods for providing image feedback
US8700643 - Managing electronic media collections
US8713002 - Identifying media content in queries
US8717401 - Secure, location-based virtual collaboration
US8754926 - Managing nodes of a synchronous communication conference
US8024765 - Method and system for communicating media program information
US9203924 - Recommending a new audio file to a member of a social network
US9152247 - Computing device with force-triggered non-visual responses
US7038680B2 - System for graphical display and interactive exploratory analysis of data and data relationships