

Warren Robinett

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website: warrenrobinett.com

electronic CV: warrenrobinett.com/ecv (with videos)

Summary

BIG PICTURE. Has good ideas. Can bring them to life. Has previously hit multiple home runs in his career. Not done yet. Wants another trip to the plate.

EXPERIENCE. Successful in several areas of computer science and software design. Experience at all levels from design engineer to CEO. Principal in two start-ups, including one with a successful IPO. Responsibilities have included profit-and-loss and hiring-and-firing responsibilities. Exceptionally wide experience: start-up companies, corporate research labs, government research labs, and universities.

COMMUNICATION. Excellent skills in writing, public speaking, and one-on-one discussions. Enjoys documenting systems and writing papers. Effective in communicating with people in other disciplines, such as artists and musicians, lawyers and accountants, physicists and optical engineers.

TECHNICAL.

Designer of interactive computer graphics software. Conceived and implemented software which has defined new genres of interactive graphics:

- **Virtual Reality:** Explored applications of VR to science, medicine, and entertainment at NASA Ames Research Center and the University of North Carolina; co-invented the Nanomanipulator; helped launch first academic journal for VR (*Presence*); helped write national research agenda for VR for the National Academy of Sciences (1994).
- **Educational Software:** Designed the educational game *Rocky's Boots*, which received *InfoWorld's* Software of the Year award (runner-up) in 1982. Co-founded a major educational software publishing company, The Learning Company (1980: founded; 1982: venture capital funding; 1992: initial public offering; 1995: acquired).
- **Video Games:** Invented a genre of video games (action-adventure games) with the creation of *Adventure* for the Atari 2600 video-game console. *Adventure* sold 1 million copies.

Designer of computing hardware (2003-2012) based on new electronic devices (memristors) and new organizational schemes (defect-tolerant computing). Invented memristor-based logic-gate circuits. Invented novel circuits and architectures for defect-tolerant computing.

Work Experience

2013-2016 **Self-employed**

* Wrote a book, *The Annotated Adventure*, about the implementation of *Adventure* for the Atari 2600, the first action-adventure game.

* Developed a smartphone app, *Move It, Prove It*, for teaching algebra.

2003-2012 **HP Labs, Hewlett Packard Company, Palo Alto, California**
Contractor, Quantum Sciences Lab, Stan Williams, Director

Invented memristor-based logic circuits (2011-2012). Performed research related to memristor-crossbar memories (2006-2012). Performed research in defect-tolerant computing systems (2003-2006). Awarded 8 US patents.

- 2001-2002 **Self-employed**
Developed MathZap, a prototype video game for teaching mathematics to children.
- 1998-2000 **University of North Carolina at Chapel Hill, Computer Science Department**
Research Associate, Research Associate Professor
Taught and did research in interactive computer graphics. Member of NanoManipulator team.
- 1993-97 **Virtual Reality Games, Inc., Chapel Hill, North Carolina**
President/CEO and Founder
Started company to produce virtual reality video games for the home market. Attracted and hired staff. Wrote game design document which won \$500,000 contract with Hasbro Inc. to fund company. Managed production of prototype game. Made decision to shut down company when the consumer market for VR entertainment failed to develop. The company paid off all back salaries and debts, and made a profit overall.
- 1989-92 **University of North Carolina at Chapel Hill, Computer Science Department**
Research Associate
Manager, Head-Mounted Display Project
Directed the production and integration of the hardware and software for a Virtual Reality system in a university research environment. Managed a team of 6 grad students to produce the core software, plus an optical engineer and a laser physicist. Managed the exploration of applications of virtual reality: architectural walk-through, molecular graphics, medical imaging and 3D modeling.
Co-director, NanoManipulator Project
Conceived and initiated a project to create a real-time Virtual-Reality interface to a Scanning-Tunneling Microscope, to give scientists a sensation of presence on the surface of the sample beneath the microscope. This "Nanomanipulator" allowed scientists to see, feel, and manipulate matter at the nanometer scale. Received funding from the National Science Foundation as Co-Principal Investigator. Wrote articles, produced videotapes, and gave interviews to journalists to publicize our research, leading to coverage in magazines, newspapers and television in the U.S. and abroad. Gave lectures on VR in the US, Japan, and Europe.
- 1986-87 **NASA Ames Research Center, Mountain View, California**
Research Scientist, Virtual Environment Workstation Project
Designed the software for the NASA Virtual Environment Workstation, including display and interaction software. Used a glove input device to give gestural commands; this was the first use of a glove in Virtual Reality. Invented the interface technique of pointing with the glove to fly through the virtual world. Created several demonstrations of the potential applications using the virtual reality helmet: a 3D flow-field of computational fluid dynamics data that the user could get inside of, a simulated escalator that transported the user through the virtual world, a model of the proposed space station, and a molecule that could be scaled up and down.
- 1980-83 **The Learning Company, Fremont, California**
Chief Software Engineer and Co-founder
Created products, attracted venture capital, and founded (with 3 educators as co-founders) The Learning Company, whose business was designing and publishing educational software for grade-school children. Conceived, designed and implemented educational software products for personal computers. *Rocky's Boots* won Software of the Year awards from Learning magazine (1983), Parent's Choice magazine (1983), and Infoworld magazine (1982, runner-up), and received the Gold Award from the Software Publishers Association. *Rocky's Boots* was a visual simulation that made it possible for 11-year-old students to design simple digital logic circuits.
- 1977-79 **Atari, Inc., Sunnyvale, California**
Video Game Software Engineer
Conceived, designed and implemented video game software products. One product, *Adventure*, sold 1 million copies to gross \$25 million. *Adventure* was the first action-adventure video game. Also developed two other video games. Developed these products under severe memory limitations: 4096 bytes of ROM and 128 bytes of RAM.

Education

University of California at Berkeley, **M.S. Computer Science**, 1976

Rice University, Houston, Texas, **B.A. Computer Applications to Language and Art**, 1974

Commercial Software Products

Rocky's Boots, *Gertrude's Puzzles*, and *Gertrude's Secrets* (for the Apple II computer and IBM PC), published by The Learning Company, Fremont, California, 1982-1983, Warren Robinett and Leslie Grimm.
Adventure, *Slot Racers*, and *Basic Programming* (for the Atari 2600 video game console) published by Atari, Inc., Sunnyvale, California, 1978-79, Warren Robinett.

Selected Publications

- “The Nanomanipulator: A Virtual-Reality Interface for a Scanning Tunneling Microscope,” *Computer Graphics: Proceedings of SIGGRAPH '93*, Anaheim, California, 1993, Taylor II, R.M., W. Robinett, V.L. Chi, F.P. Brooks, Jr., W.V. Wright, R.S. Williams, E.J. Snyder.
- “Electronic Expansion of Human Perception,” *Whole Earth Review* magazine, Fall 1991, Warren Robinett.
- “The Visual Display Transformation for Virtual Reality,” *Presence*, Vol. 4, No. 1, Winter 1995, Warren Robinett and Richard Holloway.
- “Implementation of Flying, Scaling, and Grabbing in Virtual Worlds,” *ACM Symposium on Interactive 3D Graphics*, March 1992, Warren Robinett and Richard Holloway.
- “A Computational Model For the Stereoscopic Optics of a Head-Mounted Display,” *Presence*, Vol. 1, No. 1, Winter 1992, Warren Robinett and Jannick Rolland.
- “The Virtual Environment Display System,” *1986 ACM Workshop on Interactive 3D Graphics*, Scott S. Fisher, James Humphries, Michael McGreevy, Warren Robinett.
- “Computing with a trillion crummy components”, *Communications of the ACM*, Volume 50 Issue 9, September 2007, Pages 35-39, W. Robinett, G. S. Snider, P.J. Kuekes, R. Stanley Williams.
- “Defect-tolerant demultiplexers for nano-electronics constructed from error-correcting codes”, *Applied Physics A*, March 2005, Volume 80, Issue 6, pp 1161-1164, P.J. Kuekes, W. Robinett, G. Seroussi, R. Stanley Williams.
- “Memristor-CMOS Hybrid Integrated Circuits for Reconfigurable Logic”, *Nano Letters*, 2009, 9 (10), pp 3640-3645, Qiangfei Xia, Warren Robinett, Michael W. Cumbie, Neel Banerjee, Thomas J. Cardinali, J. Joshua Yang, Wei Wu, Xuema Li, William M. Tong, Dmitri B. Strukov, Gregory S. Snider, Gilberto Medeiros-Ribeiro and R. Stanley Williams.
- “A memristor-based nonvolatile latch circuit”, 2010 *Nanotechnology* 21 235203, Warren Robinett, Matthew Pickett, Julien Borghetti, Qiangfei Xia, Gregory S Snider, Gilberto Medeiros-Ribeiro and R Stanley Williams.
- “Writing to and reading from a nano-scale crossbar memory based on memristors”, 2009 *Nanotechnology* 20 425204, Pascal O Vontobel, Warren Robinett, Philip J Kuekes, Duncan R Stewart I, Joseph Straznicky and R Stanley Williams.

Professional Activities

Associate Editor, *Presence: Teleoperators and Virtual Environments*, published by MIT Press. 1991-2000.

Member, Committee on Virtual Reality Research and Development, National Academy of Sciences, Washington, DC, 1991-1994. Participated in a study to recommend a national research agenda and funding priorities for the field of Virtual Reality. The committee produced a book, *Virtual Reality: Scientific and Technical Challenges*, published by National Academy Press.

Member of ACM, 1980 - present.

Reference Sites

http://en.wikipedia.org/wiki/Warren_Robinett

<http://www.gdcvault.com/play/1021860/Classic-Game-Postmortem>