

J. Eric Townsend, IDSA

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Founder, functional prototype (2009 - current)

I design and create proof of concept models, working prototypes, and customized physical interaction devices. My recent work includes designing custom objects for antennas, Kinect experiments, and 3d printing; combining interaction devices into clothing; and developing physical computing for experimental haptic feedback. This work is documented in my online portfolio, featured on Thingiverse, and distributed by Shapeways.

My software experience includes a career of using GNU, Apache, and other open tools to deliver commercial products in the consumer electronics industry and develop in-house tools for data visualization and product improvements.

For the past several years I have been actively involved in physical computing, digital fabrication, and home-level manufacturing. I built and use an early MakerBot 3d printer, the fourth Lasersaur laser cutting and etching system, and routinely use the Arduino and Beagle Bone. I have also taught these technologies to students and given presentations to the public.

In addition to digital fabrication experience, I have experience working with metal including welding (GTAW, GMAW, gas), CNC milling, lathe work, and finishing.

My experimental projects are new ideas in custom creation using digital fabrication: lasercut decorations, custom 3d printed holiday ornaments, replacement parts for out-of-production kitchen equipment, and gaskets and parts for vintage motorcycles.

I've shared my passion for emerging technologies with several local organizations:

- as a cofounder of Dorkbot Pittsburgh, an art salon and discussion forum for “people who do strange things with electricity”
- by teaching classes at Hack Pittsburgh, a local hackerspace and technology club
- as a board member of Pyrotopia, Pittsburgh's first festival of fire and electrical arts

First Recipient of the Master of Science in Tangible Interaction Design, Carnegie Mellon University (2007 - 2009)

My research was in the areas of computational situational awareness, physical computing supporting tactical surveillance and fine arts, and passive haptic feedback. While a student I taught physical computing and interaction design using Arduino, Processing, and other open source tools.

My coursework included classes in Data Visualization (B. Fry, G. Levin), Interaction Design (J. Zimmerman), Live Performance and Interactive Technology (M. Grey, G. Levin), Machine Learning and Art (C. Guestrin, O. Khan), History of Clothing, and Advanced Japanese.

Senior Security and Privacy Engineer, TiVo Inc. (June 2001 - August 2007)

Designed and developed machine learning tools that analyze TiVo's large, anonymous, and proprietary data collections.

Designed and implemented infrastructure for provisioning TiVo DVR service in a secure manner, partially illustrated in U.S. Patent 7933950.

Developed policies, protocols, and software tools to protect customer security and privacy.

Independent Consultant (June 1998 - June 2001)

Worked with startups delivering handheld solutions and secure online commerce. Provided technical editing services for *Teach Yourself Perl in 21 Days* by Laura Lemay.

Senior Software Engineer, Liquid Audio, Inc. (April 1997 - June 1998)

Designed and developed online commerce and musical recording rights reporting systems

Multiple Roles, General Magic, Inc. (July 1994 - April 1997)

As General Magic grew from a small startup to a public company, I was the IT tech lead, a software engineer, and the Manager of Online Communications.

Parallel Systems Engineer, NASA Ames Numerical Aerodynamic Simulations Division (July 1992 - July 1994)

Developed graphic data visualization software and simulation tools for massively parallel super computers.

Projects and Memberships

- Participate as a developer and researcher in open source hardware and software projects including: Arduino, Lasersaur, openFrameworks, Reprap
- Electronics instructor and safety nerd at Hack Pittsburgh
- Rebuild and restore vintage motorcycles and tools, design and fabricate custom parts
- Board member and safety nerd of the Pyrotopia festival of fire and electrical arts
- Co-founder/organizer of Dorkbot Pittsburgh (www.dorkbot.org/dorkbotpgh)
- Founder of the opensource fabrication special interest group
- General Class Amateur Radio license, KG6ZVQ
- Member of ACM, ARRL, IEEE, IXDA; Professional Member of Industrial Designers Society of America (IDSA)

Patents

Co-author, U.S. Patent 7933950, "Secure control of features of a digital device"

Education

- Master of Science in Tangible Interaction Design, Carnegie Mellon University
- BA Journalism; minor Computer Science, University of Houston
- Additional education and coursework in analog electronics, physical computing, studio arts, drama, music, costuming, machine shop technologies, welding, and technical drawing
- Continuing studies in design, physical computing, digital fabrication and Japanese language