

## **J. Eric Townsend, IDSA**

323 Edgewood Road  
Pittsburgh, PA 15221  
jet@functionalprototype.com  
412.523.5349

### **Founder, functional prototype**

*(2009 - current)*

Design and create proof of concept models, working prototypes, and customized physical interaction devices.

Develop new products sold via Etsy, Shapeways, and eBay.

Design and implement open source software for digital fabrication, environmental monitoring, and home-scale manufacturing platforms:

- Lasersaur, open source laser cutter: 4th prototype, current release candidate
- 3D (FDM) printers, including MakerBot Cupcake, MendelMax 1.5, E3D BigBox
- Embedded computers Arduino, BeagleBone, and Raspberry Pi

Portfolio: [functionalprototype.com/portfolio](http://functionalprototype.com/portfolio)

### **Recent Education**

#### **Master of Tangible Interaction Design, Carnegie Mellon University**

*(August 2007 - May 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, Interaction Design, Live Performance and Interactive Technology, Machine Learning and Art, History of Clothing, and Advanced Japanese.

### **Employment Experience**

#### **Adjunct Professor, Carnegie Mellon University School of Art**

*(August 2016 - December 2016)*

Teach "Introduction to Interaction", a required class for School of Art undergraduates. Students learn the basics of p5 and Arduino and how to create elementary interactive art.

#### **UI Engineer, Apple**

*(January 2012 - October 2014)*

Implemented UI software requirements in Objective C for OSX and iOS applications in the Apple Productivity Tools and iWork products.

Reported and fixed bugs in iWork products.

## **Senior Security and Privacy Engineer, TiVo Inc.**

*(June 2001 - January 2011)*

Designed and implemented user interfaces and navigation systems implementing TiVo's privacy and security policies. Developed policies, protocols, and software tools to protect customer security and privacy on all components of the TiVo product line and service. Wrote and taught in-house classes on hacking, security, and customer privacy.

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.

## **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 systems and musical recording rights reporting systems

## **Multiple Roles, General Magic, Inc.**

*(July 1994 - April 1997)*

Performed tasks as IT tech lead, 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.

## **Preferred Development Tools and Environments**

- Languages: C, C++, PERL, Python, JavaScript
- User Interfaces: Qt5, Cocoa
- GNU tools: g++, emacs, gdb, etc.
- Design: Rhinoceros 5, SolidWorks, Adobe Creative Suite
- FDM tools: Simplify3D, Octo-Print
- Arduino, BeagleBone, Raspberry Pi, P5, openFrameworks
- Linux, OS X, iOS, BSD, SVR4

## **Projects and Memberships**

- Participate as a developer and researcher in open source hardware and software projects including: Arduino, Lasersaur, openFrameworks, Reprap
- Build and customize software and hardware for digital fabrication
- Co-founder/organizer of Dorkbot Pittsburgh, [www.dorkbotpgh.org](http://www.dorkbotpgh.org)
- General Class Amateur Radio license, KC3HSO
- Member of ACM, ARRL, IEEE, Professional Member of IDSA, IXDA

## **Patents**

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