

# JEFF KATZ

Full-Stack Embedded Systems Engineer

## TECHNICAL STRENGTHS

- programming languages* C, Objective C, Java, C#, Shell Scripting, C++, ARM Assembly
- web development* PHP, ECMAScript, HTML5/CSS, AJAX, Flex/AS3, J2EE
- database systems* PostgreSQL, SQLite, Oracle, MySQL
- mobile platforms* iOS, Android, Windows Phone 7
- hardware design* Schematic capture, PCB layout, BOM management, Manufacturing Liaison  
ARM SoC, AVR, PIC, MSP, USB, Fast Ethernet, ISM Band Transceivers, PoE, SMPS

## WORK EXPERIENCE

Brivo Systems, LLC  
Betheda, MD

Embedded Engineer 2009 - present

Worked on web-configured access control products, including physical points-of-presence for SaaS stack and standalone appliances. Responsibilities included the full stack, from hardware design and bring-up to presentation layer (mostly HTML/AJAX).

- ♦ *IPDC* Wall-mount physical presence: One-gang wall mount access control panel. Is an Atmel ARM9 SoC with 32M of RAM and 32M of Flash, Ethernet, USB, and an AVR connected to access control hardware.
  - Took requirements and some guidance from management and designed new product essentially from scratch
  - Prototyped key sections on breadboard, ensuring fitness for intended purpose
  - Schematic entry and PCB layout for two PCBs that have board-to-board connections, including USB, Ethernet, and power
  - Implemented three SMPS, including one for PoE and one current-limited for supplying external accessories
  - Wrote firmware for AVR implementing access control logic
  - Modified u-boot to support board and Ethernet PHY, modified Linux kernel to support board and wrote device drivers for PHY, including kernel mode debugging
  - Successfully performed board bring-up (in less than 24 hours after receiving first prototypes I had the Linux kernel booting)
  - Troubleshoot issues with Atmel SoC and Ethernet PHY, applied DFM and BOM management in concert with creating the manufacturing package
  - Modeled injection-molded case and bent metal backplate with AutoCAD
  - Guided product through earning UL 294 and FCC compliance
  - Wrote and WHQL'd windows driver package for the USB CDC-ACM interface
  - Developed functional test rig for manufacturing, oversaw setup of two manufacturing lines

- ♦ *Aparato* Access Control Appliance: 1U rack-mounted access control appliance. System runs Linux 2.6, PostgreSQL, and is configured by webpage backed by C/FastCGI. Business logic implemented as suite of userland appliances that communicate via DBUS. Communication with control panels is through OpenSSL TCP Sockets and HTTPS. System integrity is assured by use of TPM, strict access partitioning, and full-drive encryption.
  - Developed new mapping and printing functionality using AS3/Flex; Developed new reporting and threat level front-end using JQuery, AJAX, HTML5
  - Designed critical data path from C/CGI backend to web frontend, including specifying and implementing new Linux daemon
  - Created new licensing and branding mechanisms which are tied to the TPM chip
  - Optimized queries for reporting engine: Pages typically generate in less than 5ms
  - Re-factored dashboard to dynamically query state over secure channel
  - Discovered and fixed a host of minor security problems including XSS and XSRF
  - Triaged trouble tickets from technical support and QA, implemented new features and enhancements, fixed bugs
- ♦ Access Control Panel Firmware: Supporting multiple hardware (including ARM and CRIS) targets, this is the “bread and butter” of Brivo’s business. The decision to ultimately open or not open a door is made here. The firmware has many flavors, each supporting a different configuration source.
  - Added complex new behaviors under tight size and memory constraints
  - Discovered and repaired potential memory leaks, segmentation faults
  - Ported firmware to new hardware platforms
- ♦ Designed back-office software with PHP/Oracle to support product lifecycle, including manufacturing of hardware, accounting and sales tracking, and marketing management.
- ♦ Liaised with and provided supported for the SaaS-Platform developers, sales engineers, operations, marketing, product management, quality assurance, and technical support. Furnished as a technical resource to potential partners at several tradeshow.

gWHIZ LLC  
Annapolis, MD

Mobile Software  
Developer      2008 - 2009

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- ♦ *gFlash+* Mobile flash-card application: Allows users to create their own rich media flash card sets in google docs, and then access them from anywhere.
    - Used Objective C/Cocoa Touch, Google Web API, and SQLite to rewrite Blackberry app for iOS platform, adding new features and solidifying usability
    - Application ‘gFlash+’ spent several weeks as the #1 education app in the app store
    - The framework behind gFlash+ is the foundation of more than ninety apps from gWhiz, and constitutes the bulk of their current business (previously they were highly concentrated on blackberry)
  - ♦ Conformed to published Apple UI guidelines, hand-held the early app store approval
  - ♦ Bootstrapped gWHIZ’s development methodology: Instilled best practices, encouraged use of bug tracking, version control, and other project management facilities

Advanced Acoustic Concepts  
Columbia, MD

Software Engineer 2006 - 2007

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- ♦ Used Java, J2EE, CORBA, and C++ to upgrade and enhance mission-critical Navy systems
- ♦ Wrote documentation, test cases, and an automated testing suite
- ♦ Ensured conformance with US Government and Navy Standards
- ♦ Obtained Secret Clearance (*currently inactive*)

## EDUCATION

Bachelor of Science in Computer Science *May 2009*  
Frostburg State University, Frostburg, MD

Computer Engineering *2004-2006*  
NYU Polytechnic University, Brooklyn, NY

## METADATA

- open source* GSoC 2008 (dsyslog, systems level software in C/glib), contributor to: devkitPro (ARM toolchain), Atheme (IRC Services), Ecks (IRC Services), and many more small patches
- mobile apps* MerchantPlus/iTakeCredit (WP7 and iOS mobile credit card terminals), PULSEcamera (WP7 and Android social photo sharing service), Triphids (iOS retro arcade game), AndroidChat (open-source location aware IRC client for Android)
- professional associations* ACM Professional Member and former chapter president (2007–2009), ACM International Collegiate Programming Contest participant (2005–2009)
- volunteering* Washington Animal Rescue League, Peace House Orange NJ
- awards* Time's "Man of the Year" 2006. Zimbabwean Trillionaire. Redditor [kraln]. Married in 2010 to loving, wonderful wife.