

Brian R. Gunnison
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EXPERTISE:

Software architecture and design for consumer products including professional video, medical equipment and robotics. Python, C++, C, Firmware, RTOS, Embedded systems, Geographically distributed teams, Hardware design. Strong oral and written communication skills.

BUSINESS EXPERIENCE:

Sept. 2016 – Present **TriContinent, Auburn, CA** **Development Engineer**

- TriContinent Scientific is a leading manufacturer of precision syringe pumps and liquid handling robots.
- Designing robotic fluid delivery systems that perform precisely at μm resolutions.
- Precision stepper motor control and encoder technology.
- Mechanical systems evaluation via a Python test infrastructure.
- Responsible for electronic design and debug of micro-controller systems.
- Wrote FW in C++, implemented version control system.
- Defining and implementing state of the art software practices in embedded systems.
- Developed calibration algorithm to minimize fluid flow variations in syringe pumps.
- Hardware data acquisition and visualization via Python.

Jan. 2015 – April 2016 **BlackMagic Design, Nevada City, CA** **Senior Software Engineer**

- Designing new features and software for the HyperDeck product line.
- Working directly with Xilinx FPGA engineers to integrate 4K video and storage features.
- Worked with ProRes and DNxHD codecs (performed ProRes certification with Apple).
- Responsible for high speed video storage on SSDs and SD cards.
- Familiar with XCode and Mac development.
- Responsible for HyperDeck 4.4.1 SW update.
- All code (application and embedded) is C++.
- Adobe Premiere for sophisticated video test clip generation.

Oct. 2009 – Jan. 2015 **Intel, Folsom, CA** **Senior Media Software Engineer**

- Graphics driver development for the content protection team.
- Delivered innovative Digital Rights Management solutions on state of the art Intel platforms across multiple operating systems.
- Worked with AES encryption/decryption, graphics surfaces and image formats.
- Received Division Recognition Award for my contribution to Intel's Identity Protection Technology program.
- Developed innovative code coverage analyzer for SSD firmware.
- Experience with ARM Architecture, Green Hills development tools.
- Registered patent and presented paper at Intel's software developer's conference.
- Managed Green Hills relationship, Arranged training classes for developers.

Sept. 2004 – Apr. 2009 **2Wire, Nevada City, CA** **Senior Software Engineer**

- Responsible for the AT&T Homezone set top box hardware DVT
- Involved in all aspects (software and hardware) of an EchoStar set-top box
- Wrote software for Video and Audio interfaces (HDMI, component, composite, SPDIF and Stereo)
- Created embedded Linux test executive. Optimized kernel and root file system to less than 3.5 MB
- Transferred to residential gateway ASIC verification group after Homezone project was completed
- Created the process, standards and software development environment (SDE) for verification of a new dual CPU (Trimedia) SoC. The SDE was written in Python and C
- Wrote JTAG tools API with SWIG Python extensions
- Created an innovative cross compilation toolchain using Python and SCons
- Taught a beginning Python class for the hardware engineers

- July 2003 – July 2004** **Evolution Robotics, Pasadena, CA** **Senior Software Engineer**
- Defined the real-time optimization strategy for embedding the Evolution Robotic Software Platform on low cost embedded Linux targets.
 - Profiled robotic applications to understand the tradeoffs between hardware cost and software performance.
 - Designed architecture for a CPU-DSP system to accelerate components of the robot's vision object recognition algorithm.
 - Wrote software interfaces between the system components in C++.

- Dec. 2001 - Apr. 2003** **NAI Tech Products, Auburn, CA** **Project Lead**
- Project lead for a new medical DVD recorder product.
 - Researched DVD video, authoring and recording.
 - Wrote product specification, designed object oriented architecture.
 - Designed an IPC scheme that allowed for reusable software components.
 - All software was written in C++ using object-oriented methodology.
 - Developed an Embedded Windows XP (XPe) operating system for the product.
 - The product made a successful debut at RSNA in 2002.

- June 2001 - Oct. 2001** **Grass Valley Group, Grass Valley, CA** **Senior Software Engineer**
- Attended training to learn UML
 - Implemented a command line interface in C++ for product power up.

- June 1998 - April 2001** **3Com – Advanced Technology Group, Grass Valley, CA** **Senior Software Engineer**
- Optimized and added features to a new analog modem supervisor. Optimized the data path for real-time voice
 - Evaluated technology for Internet audio appliances
 - Developed Linux kernel module framework for a WAN device driver using object-oriented techniques

- June 1995 - May 1998** **Cardinal Technologies (Redwing Corp.), Lancaster, PA** **Senior Software Engineer**
- Started Cardinal's Advanced Technology Group with other members of Turtle Beach
 - Created documentation standards, SCM and tools.
 - Responsible for DSP Board Support Package (BSP).
 - The silicon, compiler/linker and internally developed debugger were all new and presented a very challenging development task

- May 1994 - June 1995** **Turtle Beach Systems, York, PA** **Senior Software Engineer**
- Designed software for PCMCIA Audio cards.
 - Wrote low-level interfaces for audio CODEC and MIDI routines in 68K assembly.
 - Created low level API for cards for use with Windows driver and software based wavetable synthesizer

- Sept. 1992 - April 1994** **Studer Editech, Menlo Park, CA** **Senior Firmware Engineer**
- Software designer for Dyaxis II Digital Audio Workstation
 - Wrote embedded software for dynamic automation of both the software and hardware mixer interfaces

- Nov. 1986 - Sept. 1992** **StrataCom, San Jose, CA** **Member of the Technical Staff**
- Hardware design for large packet nodes (IPX)
 - Firmware designer for T1/E1 packet trunk interface
 - Implemented voice and data packet queuing architecture
 - Wrote firmware for multiprocessor architecture consisting of 4 DSP56001s and one 68008
 - All DSP firmware was written in assembly language
 - StrataCom went public in 1992 and was acquired by Cisco in 1996

- Oct 2018**
- Taught Intro to Python class at the Nevada City Tech Connection.

EDUCATION:

BSEE, California Polytechnic State University, San Luis Obispo