Bjorn Roche

CAREER HIGHLIGHTS

- Co-Founder/CTO, Shimmeo: Used by thousands of teens worldwide to create and collaborate on music videos. NY App Festival Audience Choice Award.
- Development Lead, Mantis: Endorsed by Rivers Cuomo of Weezer. Written-up in *Wired*.
- Creator, Xonami: Chosen as a MassChallenge startup competition finalist. Write-ups in *Electronic Musician*, and others.
- US Patent: No. US 20110078246 A1 "System and Method of Simultaneous Collaboration"
- Publication: "Automated assessment of small airway disease from low-dose lung CT: a preliminary study" *Proceedings of SPIE* Vol. 5030. Björn Dittmer-Roche, Henry Rusinek, Jane P. Ko, Georgeann McGuinness and David Naidich.

SKILLS

- Leadership: Leading small teams to build complex projects on time and on budget.
- Java: 10 years experience with core Java.
- C/C++: 10 years experience, including STL.
- Objective-C/Swift: 2 years experience, including media frameworks (AVFoundation).
- Cloud: AWS, Heroku, Redis, MongoDB, RabbitMQ, ElasticSearch.
- DSP: Fourier, time-domain and wavelet methods.
- Video: Video processing, transcoding and streaming.
- Other: Go, HTTP/ReST, GLSL.
- Music Industry: DDEX, Aspera, licensing, production, copyrights.

WORK EXPERIENCE

Cofounder and CTO, Shimmeo, Inc   **2013-Present**

Shimmeo is an iOS mobile app that instantly creates compelling music videos from a user's performance. Invented proprietary technology for analyzing, syncing and editing video to music instantly. Led small team to continue development. System included social-networking backend for sharing videos, liking, following, commenting, etc. Also involved in all other aspects of business, including music licensing, marketing, etc.
GPUImage|GLSL|Heroku|Objective-C|C++|Swift|AVFoundation|Heroku|Go|BASH|Revel Framework|Redis|MongoDB|RabbitMQ|S3|DDEX|API|CloudFront|AWS|S3|Elastic-Transcoder

Owner and President, XO Audio LLC   **2003-2013**

Consulted with numerous companies on audio software design and implementation (see consulting experience). Designed and implemented Xonami, a desktop digital audio workstation with real-time collaboration, and unique security and cryptography features. Includes server-side technology to keep clients constantly in sync with each other's changes. Xonami was a finalist in the MassChallenge startup competition. Xonami was based on the prior product, XO Wave, a professional digital audio editor and mastering application for Linux and Mac OS X. XO Wave won praise from Electronic Musician, 4Front Technologies, softonic.com and linux-sound.org among others.
Java|AWS|EC2|cryptopp|Heroku|Postgress|MongoDB|ReST|XML|XMPP|Restlet|Drupal| XStream|Smack|Play Framework|Scala|JQuery|Javascript|Java|JNI|C/C++|STL|pthreads| PortAudio|QuickTime|TCP/IP|UDP/IP|JNI|Make|Ant|Jingle|RTSP|Smack|ICE|Openfire

Research Programmer, Department of Radiology, NYU School of Medicine   **2002-2003**

Designed, implemented and tested command-line image analysis application in C++. Application performed texture analysis on images from lung CT scans using linear scale-space techniques (aka "Gaussian Derivatives"). Analyzed output from application in SPSS to diagnose severity of a class of diseases known as small airway disease. Published (as first author) and presented results at SPIE's Physics of Medical Imaging conference in 2003. Contributed code to other research projects based on lung CT.
Bio-medical Imaging|CT|Image Processing|Automated Analysis|SPSS|C++|Linear Scale-Space| Texture Analysis.

Scientific Programmer, GenSAT Project, Rockefeller University.   **2002-2003**

Responsibilities ranged from maintaining and administering Sun and Linux servers as well as Windows workstations, to developing custom image processing software. Performed regular patches and updates as needed to maintain security and performance. Specified and installed new systems and software when needed. Created and delivered data tapes as specified by NIH using tar and custom software. Custom software performed a variety of automated and semi-automated image processing tasks such as rotation, cropping, removal of debris and standardization of brightness and contrast on a high volume of large (>200 MB) microscope images.
Samba|NFS|Legato NetWorker (Solstice Backup)|Apache|Tomcat|MySQL|JSP|Java|Solaris|Linux|Windows|Image Processing|Automated Image Analysis

Systems Administrator, Bio-Imaging Center, Rockefeller University. 2001-2002
Established and administered heterogeneous network of Irix, Solaris, Linux and Windows machines. Wrote custom software for monitoring usage and managing billing. Performed regular patches and updates as needed to maintain security and performance. Specified and installed new systems and software when needed. Instructed researchers on the use of Metamorph, Zeiss LSM 510, Applied Precision Delta Vision and "Spinning Disk" Confocal system by Perkin Elmer. Aided researchers in collecting microscope data and performing experiments. Performed maintenance on Microscopes as needed.
Samba|PC NetLink|NFS|Legato NetWorker|Apache|Microscopy|Windows|Irix|C|Perl|TCP/IP

Research Assistant, Millhauser Laboratory at NYU Medical Center. Summer 2000
Worked on developing new testing paradigm for use with PET scans, and performed preparation and analysis of neuro-imaging data. Other duties included Unix system administration and some programming.
PET|MRI|UNIX|SYS V|Solaris

Laboratory Assistant, Cornell Medical College, NYC. Summer 1997, 1998
Work involved developing new techniques for growing fat cells that are more conducive to immuno-fluorescence microscopy (`97) and developing a new radioactive assay to measure budding of cellular recycling compartments (`98).
Immuno-Flourescence|Bio-Chemistry|Microscopy

CONSULTING EXPERIENCE (XO AUDIO, LLC)

Automated emergency response signal detection and recording, eDispatches 2013
Rewrote existing code for detection and recording of emergency response signals. Improved interoperability and compatibility with diverse systems. Worked with eDispatches to define project scope and requirements, and implemented required features independently. System is currently deployed across the country by eDispatches customers.
C++|STL|Linux|Embedded Systems|DSP|pthreads|Audio I/O|syslogs.

Android Library, Chartbeat/ExpandTheRoom, LLC 2013
Developed Android client-library for Chartbeat's market-leading analytics platform. Developed, tested and documented library. Provided energy-usage analysis. Library is widely deployed by Chartbeat customers worldwide.
Android|Java|Multi-threading|API

Cross-Platform Digital Audio Effects Libraries, Club Create 2012
Developed API and implemented a variety of real-time and off-line audio effects, such as filters, reverbs, and other processors to operate in cross-platform environment that included web-browsers, servers, and mobile devices.
Flash|Cross-Platform|HEX|DSP|Audio|Real-Time

Android Shoutcast Playback Library, ExpandTheRoom, LLC 2012
Developed "drop-in" replacement for Android's Shoutcast playback capabilities, with bug-fixes and additional features. Defined requirements in collaboration with ExpandTheRoom and implemented the required features independently. Resulting low-level library, which was compatible with both AAC and MP3 streams, was widely deployed in android app written for a major sports radio network.
Android|Java|JNI|Audio|Shoutcast|Streaming

"Mantis," web-based audio editor, Indaba Media, LLC   **2009**

Consulted with Indaba about all technical aspects of the project from conception to completion including assisting with project scoping and specification. Promoted to lead the team from beta to final release including complete UI redesign. DAW was endorsed by Rivers Cuomo, singer and front-man of the Grammy Award-winning band Weezer, and written up in Wired as, "an online version of ProTools for Musical Collaboration."

Audio|DSP|Java|Web|Cloud|Browser|API|ReST|Audio|Applets

High-speed media file transfer and workflow integration, Sterling Sound   **2008**

Developed a custom, high-speed, secure audio file transfer tool using Aspera libraries for Mac OS X. Software is currently used by Sterling Sound to transfer master and source-files between Sterling Sound in New York City and their clients across the globe.

Java|C#|API|Web|Media|Cloud|UDP|SCP|Aspera

Search Indexing, Bondi Digital Publishing, for Rolling Stone and Playboy   **2007**

Developed indexing tool and OS X integration of Lucene-based search system for Bondi's Rolling Stone and Playboy DVD Boxed Sets.

Lucene|JNI|Java|Objective-C

EDUCATION

Swarthmore College, Swarthmore, PA   **December, 2000**

BA, Mathematics and Statistics. Concentration in Computer Science.
Additional Coursework in Engineering and Music.