

JONATHAN ROSS

Boston, MA

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Proven leader and software architect with a history of delivering large, complex, interdisciplinary products. Effective at leading and mentoring large teams and driving consensus and collaboration across vastly different technology stacks. Takes a business-minded, solutions-driven approach to technical design.

⚙ TECHNICAL SKILLS

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|------------------|--|
| Languages: | C++, TypeScript, JavaScript, Java, Python |
| Graphics: | Qt/QML/WebEngine, GStreamer, Ogre3D, Pixi.js, Three.js |
| Vision: | OpenCV |
| Frameworks/Libs: | STL, Boost (msm, mpl), PEGTL, Eigen, Poco, ALSA, v8 |
| Embedded: | Android OS, Buildroot, Arduino, Raspberry Pi |
| Web: | Emscripten, HTML5/CSS/JS, React/Redux, Webpack |
| Cloud: | Node.js, Tomcat, AWS, Docker, Microservices Architecture |
| Tools: | Git, GitHub, Jira, Agile (Scrum) |
| Build: | CMake, Make, QMake, Gulp |

👛 EXPERIENCE

AMAZON LAB126

Remote

Senior Software Engineer

September 2022 - Present

- Engineering lead for the [Amazon Astro](#), an Alexa enabled mobile robot.
- Currently leading a cross org effort to create a consistent and more dynamic character experience across all features through an architectural redesign.
- Developing and designing a robot centric programming language for expressing character.

AMAZON ALEXA DEVICES

Cambridge, MA

Senior Software Engineer

September 2018 - September 2022

- Lead architect of the [Echo Show 10's](#) motion capabilities.
 - Built out all motor/motion features, safety features, motion policies, vision and audio integrations.
 - Designed and built automatic motion CX for all Alexa experiences.
 - Worked with multiple internal teams to integrate 1p skills: Alexa Guard, Drop in, Alexa Video Calls, Photos, and Alexa's demo team.
- Designed the specification for and built out 3p APIs for Echo Show 10s new capabilities, which allows 3p developers to sense and react to the environment in their skills. This includes
 - APL extensions for [Smart Motion](#) and [Entity Sensing](#) APL extensions.
 - Web API for Games [Smart Motion](#) and [Entity Sensing](#) Extensions.
- Architected the [Echo Show 10's](#) web simulator, built with Emscripten.
- Main developer and architect of the web [APL](#) renderer, used to display APL on TVs, Xbox, and in the [APL authoring tool](#) and Alexa web simulator.

JIBO, INC

Boston, MA

Chief Architect

April 2018 - June 2018

- Technical lead for a team of 50 engineers.
- Set technology vision and direction for the company.
- Converted business objectives into a unified technology plan.
- Sole technical stakeholder for all product decisions.
- Main point of contact for all technology integrations with external business partners.
- Restructured team and appointed architectural leads to most effectively cover all major components of the tech stack.
- Designed large key components including dynamic proactivity, reminders, 3rd party cloud push, 3rd party cloud integration and authentication models, sandboxed cloud-hosted on-robot skills, and hybrid cloud/on-robot skills.
- Spearheaded unification of cloud infrastructure to enable faster cross stack development of new features.

Chief Robot Architect

November 2017 - April 2018

- Lead a team of 12 robotics and vision engineers in a total rewrite of Jibo's embedded software stack, called "Project Phoenix".
- Set overall architectural direction of Phoenix and developed a transition plan to fast track it to production.
- Lead developer for Jibo's new graphics system built using Qt.
- Technical lead for all embedded development including v1 systems.

Head of SDK

Jan 2015 - November 2017

- Overall architect and SDK team lead.
- Hired, built, and led a talented team of 5 engineers and 2 QA testers responsible for the development of Jibo's SDK, which include visual behavior editors, NLU and dialog tools, animation tools, and a robot simulator.

Software Architect

November 2012 - Jan 2015

- Second employee and first engineer at Jibo.
- Ideated and pitched concepts/demos to investors.
- Responsible for building 2 prototype robots, one of which starred in Jibo's Indiegogo campaign.
- Worked full stack, writing everything from microprocessor firmware to high level behavioral engines.

ZYNGA

San Francisco, CA

Principal Software Engineer

May 2011 - October 2012

- Tech lead and server and client side engineer for ChefVille.
- Developed RAD, a UI framework that became the standard at Zynga and localized into 18 different languages, including languages read right to left.

Senior Software Engineer

March 2011 - May 2011

- Client and server side engineer for CafeWorld and CityVille.

DISNEY

Los Angeles, CA

Senior Software Engineer

November 2007 - March 2010

- Developed and maintained high performance real-time server side technologies for current and unannounced virtual worlds.
- A lead developer on *World of Car Online*, a Flash based 3D MMO for kids. Developed custom server and client rigid body physics engine, hand-tuned for low end machines; AI and an AI scripting system; single and multi-player Circuit Racing; and the race career and treadmill system. Also co-wrote the game's questing and questing scripting system.
- Inventor of ToyBridge, a framework for communication between a web deployed Flash application and hardware devices.
- Member of ToyMorrow, an interdivisional high-tech toys of the future think tank.

XPLANA LEARNING

Boston, MA

Senior Software Engineer

June 2006 - November 2007

- Led a team of client side engineers in developing online learning software.
- Developed an online customizable ebook, and math learning courses, which won a Codie award for "Best Mathematics Instructional Solution."
- Participated in overall company strategy, and pushed new ideas and technology to keep products on the cutting edge.

NICOLELIS NEUROSCIENCE LAB AT DUKE UNIVERSITY

Durham, NC

Research Engineer

May 2004 - May 2006

- Provided mathematical analysis of brain waves.
- Wrote programs to aid in the visualization of these data.
- Developed an algorithm to automatically detect brain states in rats (REM, Slow Wave, Awake) base on brain signals.
- Implemented artificial neural nets to show and imitate the mathematical properties of dreams.

💡 PATENTS

System to mitigate image jitter by an actuator driven camera

United States Patent No. 11,265,469

Granted March 1st, 2022

Persistent companion device configuration and deployment platform

United States Patent Application 20,170,206,064

Filed March 30th, 2017

Apparatus and methods for providing a persistent companion device

United States Patent Application 20,150,314,454

Filed July 15th, 2015

System and Method for Integrated Hardware Platform for Flash Applications with Distributed Objects

Patent No.: US 8,924,989 B2

Granted December 30th, 2014

SPEAKING EVENTS

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|---|-------------------------|
| Babson Recurring guest lecturer for entrepreneurship classes | November 2017 - Present |
| Github Universe Building a Social Robot with Atom and Electron | February 2016 |
| SpeechTek Building Skills for a Conversational Robot | August 2015 |
| Exploring Computer Science Program targeting high school students meant to increase the number of minorities and women who gain exposure to engineering | April 2010 |
| USC GamePipe Laboratory Speaker for seminar series on game AI and physics | November 2009 |

AWARDS

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|--|---------------|
| Best Invention of 2017 Time's annual best inventions issue awarded Jibo best invention of 2017 | Time Magazine |
| CTO Award For the development of the RAD UI framework | Zynga |
| Disney Inventor Award Walt Disney Inventor Award for ToyBridge | Disney |

EDUCATION

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|---|------------|
| Duke University BS Electrical Engineering | Durham, NC |
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