JONATHAN L. COX

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Experience:

Shield AI

Shield AI is an artificial intelligence technology company focused on developing collaborative autonomous platforms that operate in complex and restricted environments with minimal human direction.

Software Engineering Manager *Jun 2024 – Present*

- Managed engineering team of 6 responsible for EdgeOS Core, a proprietary C++17 based middleware SDK used as the foundation for the Hivemind Autonomy framework.
- Accomplished a 50% increase in feature adoption by driving stakeholder engagement and design reviews.
- Enhanced feature time estimation and completion by 20% through effective sprint planning and ceremonies.
  - Drove requirements gathering, decomposition with external and internal stakeholders
  - Ensured 100% on–time delivery of critical features by prioritizing and assigning team tasks.
- Established growth strategy for team and interviewed potential candidates.
- Established and tracked career goals and mentored senior and junior developers through weekly touchpoints.
- Developed a knowledge–sharing strategy, boosting team expertise through bi–weekly tech deep dives and group code reviews.
- Reviewed code and documentation to ensure adherence to best practices and standards.

Product Manager *Jul 2022 - Jun 2024*

- Wrote product description documents, user stories, and drove over 400 product requirements for:
  - V-BAT Commander, React based operator facing application for flying teams of autonomous aircraft
  - V-BAT Trainer, application used to train operators to fly teams of autonomous aircraft
  - HMC Services, C++ backend framework enabling communication of aircraft to third party services
- Aligned long–term product strategy with business goals, anticipating:
  - ITAR and EAR compliance
  - Expanding platforms, payloads, and behavior capabilities
  - Granular and flexible pricing options for customers
  - Building maintainable and testable products that could operate in harsh environments
- Regularly presented product demos to executives and external stakeholders.
- Maintained product roadmaps and prioritized capabilities against competing dependent projects.
- Managed interactions and communications between the Hivemind Commander engineering team, UXD, operators, and external stakeholders.
- Completed competitive analysis against competing companies and products.
- Acted as interim technical director.
  - Decomposed product requirements to system requirements for the ground control station.
  - Aligned engineering priorities and dependencies to meet project and company timelines.

NetBurner, Inc.

NetBurner designs and builds multiple network-based products in the embedded systems space. Their core modules, custom Real Time Operating System, networking stack, drivers, and tools are utilized all over the world by engineers to rapidly develop their own products, while their serial to Ethernet servers are turnkey products used in a variety of industries, including industrial automation, transportation, and energy.

Engineering Program Manager *Feb 2018 – Jul 2022*

- Reduced runtime of encrypted operations by over 50% by integrating wolfSSL SSL/TLS and SSH libraries into NetBurner's custom, C++14 based Real Time Operating System and SDK.
- Developed and/or improved over 100 user examples demonstrating core capabilities of NetBurner's SDK.
- Enhanced and debugged NetBurner's off the shelf Serial to Ethernet application.
- Wrote custom backend and frontend website functionality for NetBurner's specific needs, including modifications to shipping and payment specific workflows.
- Planned and led the following major projects with external contractor support:
  - Reduced company's website costs by 90% and improved traffic by 25% through a full site redesign, migration, and eCommerce integration
  - Established IoT Cloud Service integration for NetBurner's core module product lines with AWS and Azure
- Designed and implemented frontend of NetBurner's web-based discovery service.
- Planned content, wrote, and edited articles and for monthly newsletters.
- Wrote and edited system level and user documentation.
- Updated and maintained integrations and customer facing examples using AWS and Azure cloud-based services and systems.

Project Engineer *Sept 2016 – Feb 2018*

- Designed and implemented unit tests to cover 95% of NetBurner's custom, C++ based Real Time Operating System and SDK.
- Reduced manual testing by 95% by incorporating hardware-in-the-loop test fixtures to Jenkins CI/CD pipelines for all NetBurner's modules.
- Reduced production errors by 50% through implementing a new programming and testing fixture for NetBurner's SB800EX Serial to Ethernet module, including serial and network functionality tests.
- Debugged and fixed issues with NetBurner's Real Time Operating System, custom networking stack, drivers, and software libraries.
- Reinstated and managed NetBurner's newsletter.

Atlas Vault, Inc.

Atlas Vault was an ambitious startup that sought to eliminate the risk vendors posed to enterprise companies by bridging the gap between their security and procurement teams. It did this by developing a web application that provided vendor risk assessments throughout a project's bidding process.

Chief Technology Officer *Feb 2016 – Feb 2017*

- Implemented all features and changes to the product based on Node.js and Angular, and hosted through AWS services, including Elastic Beanstalk, EC2, S3, and RDS.
- Resolved all security vulnerabilities that were uncovered by penetration testing.

- Established and implemented product development lifecycle.
- Established, documented, and implemented application security policies.
- Designed and documented development team growth strategy and budget.
- Collaborated on and provided time estimates for product roadmap.

Daybreak Games Company, LLC/Sony Online Entertainment

Daybreak Games Company, formerly Sony Online Entertainment, is home to the illustrious EverQuest franchise, and is one of the founders of the massively multiplayer online role-playing genre.

Programmer II – EQNext\Landmark *May 2015 – Jan 2016*

- Contributed to several gameplay systems for a massively multiplayer game built with C++14 using Visual Studio, including:
  - Extending online chat and chat filters
  - Adding player facing tools for in-game area creation using voxel-based terrain
  - Extending ability system to allow for multiple event-based triggers and combined effects
- Integrated and extended a utility based artificial intelligence system, Storybricks AI, adding additional flexibility to the computations used to determine NPC behavior.
- Developed and improved an algorithm for determining the interior space of open voxel-based volumes.
- Worked with cross functional teams to extend functionality and usability of core system libraries.
- Managed communicaiton between artists, designers, and tools engineers to negotiate and improve internal tools.
- Used Visual Studio debugging tools to profile client software to identify and resolve performance bottlenecks.

Programmer – EQNext\Landmark *Jun 2013 – Apr 2015*

- Became a team expert in database integration for game systems using both predefined design data using MySQL, as well as runtime data.
- Designed, implemented, and refined a system to recommend purchase items to players based on their search and purchase history, as well as the search and purchase history of their friends.
- Assisted in the development, implementation, and iteration of several key gameplay features using C++14, including the guild system, player resource system, and material harvesting.
- Designed and implemented a system that managed and charged user accounts for the maintenance of virtual property.

Blizzard Entertainment

With a host of world-renowned video game franchises across multiple genres, Blizzard Entertainment has come to define the gold standard by which other gaming companies are compared.

Cinematics R&D Intern *May 2012 – Aug 2012*

- Reduced scene loading time by a factor of 100 and doubled the interactive framerate of an in-house lighting tool by developing a Maya plugin that loaded animated geometry from a custom file format.

Clemson University

Research Assistant and Graduate Student *Aug 2009 – May 2013*

- Developed and maintained a web-based experiment tool called DynaSearch which allows for dynamic creation and deployment of experiments centered on user interaction and perception.
- Developed alternate methods to the error cone for visualizing the uncertainty associated with the National Hurricane Center's hurricane predictions.

United States Navy

Intelligence Specialist Second Class Petty Officer *Aug 2001 – Jun 2005, Honorable Discharge*

- Deployed twice to the Persian Gulf in support of Operation Iraqi Freedom on the USS BATAAN (LHD-5).
- Received two Letters of Commendation for exceptional performance, as well as several other medals for service.

Certifications

Generative AI for Software Development Specialization, DeepLearning.AI (Nov 2024)
Generative AI with Large Language Models, DeepLearning.AI (Nov 2024)

Education

Master's in Computer Science, Clemson University, August 2013

Bachelor of Science in Computer Science, Clemson University, August 2009
Emphasis Area: Fine Art

Publications

Cox J, House D, Lindell M. "Visualizing Uncertainty in Predicted Hurricane Tracks". In *International Journal for Uncertainty Quantification*, 3(2):143-156, 2013.

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