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| **Jonathan Hawkins**Senior Software Engineer | codehawk724@gmail.com • (626) 485-3162[LinkedIn](https://www.linkedin.com/in/jonathan-hawkins-26322124/) • San Dimas, CA |
| ***Accomplished and forward-thinking professional with extensive experience in driving innovative software solutions across diverse industries, including AI, image processing, medical devices, and defense technology.***Experienced in leading software development teams to deliver complex projects, from core system architecture to real-time data applications. Demonstrated success in securing multimillion-dollar funding, achieving Department of Defense system approval, and enhancing product functionalities to meet stringent industry standards. Well-versed in C, C++, and Python, with a strong background in high-performance computing, desktop computing, industrial electrical control systems, and embedded platforms. Adept at integrating advanced technologies like deep-zoom, image analysis, and GPU/CPU optimization to create impactful, scalable solutions. Proven ability to manage and mentor teams, providing high-impact software solutions that secure substantial funding and industry recognition. |
| Areas of Expertise |
| * Software Engineering
* Network Security
* UL508A Electrical Panels
* Team Building & Leadership
 | * Industrial Control Systems
* Image Analysis /Processing
* Microcontroller Firmware
* Algorithm Design
 | * Security Compliance
* Optical Measurement
* Data Analysis & Oversight
* Cross-department Collaboration
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| Technical Proficiencies |
| Programming Languages: | C, C++, C#, Python, Ruby/Rails, Go, Rust, GLSL, SQL |
| Tools & Technologies: | AWS, Azure, CUDA, OpenGL, Jenkins, Git, TensorFlow, MFC, Qt, AutoCAD Electrical |
| Domains & Specializations: | AI / Machine Learning, Biometrics, Microcontroller Firmware, Digital Electronics Circuit Design, Image Analysis / Processing, Mechatronics, Hardware / Electrical Control Systems, PLC Ladder Logic (TIA Portal / RSLogix), Windows, Linux, and ARM Platforms |
| Professional Experience |
| 7ensor, Glendora, CA\*Contract – Senior Software EngineerSensigent, Baldwin Park, CA\*Contract – Senior Software EngineerSpatial Genomics, Inc., Pasadena, CAAssociate Director of Software Engineering | March 2024 – September 2024December 2024 — March 2025 |
| Direct AI model development to achieve automated cell segmentation. Lead software engineering initiatives to implement core structures for data analysis applications utilizing Python and Qt. Coordinate the integration of cell segmentation with gene transcript decoding by utilizing advanced image processing techniques. Guide team in implementing deep-zoom technology for real-time interaction with large TIFF files using OpenGL. Conduct direct customer engagement by addressing product concerns and driving feature enhancements. ***Key Achievements:**** Developed analysis software independently, forming the foundation of the current system.
* Designed and implemented deep-zoom system for the instantaneous loading of vast image data.
* Delivered high-impact projects by effectively leading a team of five software engineers.
* Secured $56M in funding by driving innovative software solutions through strategic team leadership.
* Enhanced user experience by collaborating with the team to introduce new methods for visualizing sparse data.
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| StereoVision Imaging, Inc., Calabasas, CALead Software Engineer | November 2017 — February 2021 |
| Led the redesign of a 200-meter facial recognition binocular system. Restructured the company's embedded and PC application codebase within 4 months to meet JUON requirements for successful deployment to the U.S. Army. Upgraded embedded platform from a Spartan-3 FGPA to an Artix 7 and migrated all peripheral devices to I2C protocol, reducing required I/O ports. Coordinated with the Department of Defense Cyber-security team to satisfy STIG/SCA-V requirements for Acquisition of ATO. Engaged with CENTCOM, SOCOM, and PATCOM for successful software demonstrations. ***Key Achievements:**** Achieved delivery and deployment for the U.S. Army by rewriting and optimizing entire embedded and PC application codebase.
* Secured Department of Defense system approval after a decade-long process, earning commendations for exceptional facial recognition performance.
* Received high praise for software effectiveness and mission-critical success through operational deployment of the system.
* Enhanced system performance by shifting CPU image analysis code to a GPU setup, refining proprietary algorithms, and optimizing overall functionality.
* Advanced development of 3D LiDAR facial recognition technology to maintain a competitive advantage.
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| The Pilot Group, Monrovia, CASoftware/Electrical Engineer | April 2013 — November 2017 |
| Engineered FDA-compliant image analysis software for intraocular lens measurement and upheld industry standards. Supervised 3-5 engineers to manage electrical, mechanical, and software integration, troubleshoot issues, and offer technical guidance for team improvement. Created and enhanced industrial control systems, incorporating Allen Bradley and Siemens PLCs for efficient automation of optical machinery, aerospace, and pharmaceutical equipment. Programmed robotics software using C# to streamline manufacturing processes, boosting productivity in LCD adhesion, connector testing, and injection molding. Led IT operations and oversaw network management, PBX systems, and UL-508A panel shop to ensure a robust infrastructure and compliance with safety standards. ***Key Achievements:**** Secured FDA certification for cutting-edge C++ image analysis library, ensured product compliance, and accelerated market readiness.
* Enhanced manufacturing quality control by integrating optical measurement software with a client’s large-scale SQL database.
* Increased system performance and measurement accuracy to 0.25 diopters by developing compact optical bench software in C++.
* Enabled real-time data analysis and control for a medical device by designing DSP firmware, maintaining compliance with medical industry standards.
* Interfaced a variety of DAQ sensors over CAN bus and motor controllers over Modbus (RS-485) and serial RS-232.
* PID-tuned VFD servo motors, to remove focusing hysteresis, and environmental shock oven temperature controllers.
* Reverse engineered LiDAR sensor data protocol to implement a closed loop system with stepper/servo motor controllers and Keyence measurement sensors.
* Developed an internal web application with Ruby on Rails to enhance project management and payroll processes.
* Interfaced control systems for a pharmaceutical client to manage industrial HVAC systems, distillation tank level sensors, and flow meters with their existing building management system, utilizing BACNet per their existing gateways (ProtoAir) and PLC network (Siemens / Allen Bradley).
* Designed schematic and PCBs for various industrial devices and medical equipment with standard communication protocols (SPI, I2C, Modbus, CAN bus, UART, Ethernet TCP/IP and UDP).
* Delivered software for all prototype devices by collaborating with key industry players like Bausch & Lomb, Alcon, Glenair, and Boeing.
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| Tech Powered Computers, Glendora, CASenior Technician | March 2009 — March 2013 |
| Led and mentored a team of interns and full-time I.T. specialists for seamless operations across hardware, software, and network troubleshooting. Delivered expert client support by resolving complex technical issues, optimizing corporate printer setups, and maintaining email systems. Provided remote and onsite technical support to ensure system stability for enterprise clients. ***Key Achievements:**** Developed automation scripts and troubleshooting tools to improve service efficiency.
* Enhanced team productivity by developing and delivering targeted training for internal and remote users.
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| Additional ExperienceWeb Developer | Stone Giant Labs, Monrovia, CARemote Support Technician / Software Developer | SACA Technologies - Anaheim Hills, CANetwork Specialist / Software Developer | Petta Tech - Arcadia, CA |
| EducationBachelor of Science in MathematicsUniversity of La Verne, La Verne, CAAssociate of Science in MathematicsMt. San Antonio College, Walnut, CA |