Johnathan J. Flaggs

LinkedIn: www.linkedin.com/in/johnathanflaggs
Website: https://www.johnathanflaggs.com/
Email: johnathanflaggs@gmail.com
Phone: +1.949.414.9545

Software Engineer & Architect with a focus on backend system development for robotics applications. Strong aptitude for mechanical design and a successful record of leading projects from proof of concept into production.

Education

University of California, Riverside & Davis **Sep. 2010-Jun. 2014**

- UCR: BSME with concentration in Control Theory under Department of Mechanical Engineering (BCOE)
- UCD: Control Theory Concentration under Department of Mechanical and Aerospace Engineering

Technical Toolset

Development Languages & Environments:

▪ Visual Studio	▪ Codeblocks	▪ SVN/GIT	▪ Batch Script	▪ Node.js
▪ Atmel Studio	▪ C, C++	▪ C# .NET	▪ MATLAB	▪ HTML, CSS, JS
▪ RSLogix/FactoryTalk	▪ Beckhoff TwinCAT	▪ MagneMotion	▪ Fanuc Robotics	▪ Cognex Vision

Professional Experience

Lead Robotics Software Engineer at CarbonCapture **Jun. 2023-Present**

Driving system software architecture and development for modular Direct Air Capture (DAC) reactors. Ensuring that our team builds a software core that is sufficiently robust, scalable, and maintainable to support current and future product deployments. Leading hiring efforts and building infrastructure and culture to support a quickly growing technical team.

- **Identify** development resource needs and create new technical positions to aid in development efforts.
- **Coordinate** hiring efforts, budget, and team structure with executives and HR. Create and improve hiring processes
- **Synchronize** a team of mechanical, software, process, and data science engineers on a weekly basis.
- **Mentor** engineers on approaching complex problems and upkeeping best coding standards
- **Enforced** OOP and heavy emphasis on robustness, scalability, maintainability, and patterns in C# and C++
- **Anticipate** and mitigate the impact of future design changes on the software layers
- **Drive** design of macro and micro software architectures which define the core product
- **Manage** and review source control on a per-commit basis to avoid common development pitfalls
- **Drive** strategic decisions regarding budget, mechanical design, safety, maintenance, and scalability
- **Interface** with external teams for outsourcing code and supplying measurement/control devices
- **Hosted** a bi-weekly coding program wherein Jr. and Sr. developers can learn and share their contributions
- **Establish** clear and achievable performance expectations and conduct regular performance evaluations

Professional Experience

Lead Software Architect at Essentium 3D **Jun. 2021-Jun. 2023**

Leading robotics software architecture and development for high-speed industrial 3D printers. Ensuring that our team builds a software core that is sufficiently robust, scalable, and maintainable to support the product line.

- **Lead** the design and architecture of our core software which allowed us to expand from plastic to metal printing
- **Mentoring** Jr. Engineers on approaching complex problems and upkeeping best coding standards
- **OOP** and heavy emphasis on robustness, scalability, maintainability, and patterns in C# and C++
- **Anticipate** and mitigate the impact of future design changes on the software layer
- **Design** of macro and micro software architectures which define the core product
- **Manage** and review source control on a per-commit basis

Sr. Robotics Software Engineer at Amada Miyachi **Nov. 2019-Apr. 2020**

Developing software for Seam Sealing machines used primarily for medical and aerospace/defense customers. My contributions include:

- **Windows C# .NET** machine and vision process controls
- **Contribute** to and modernize support libraries written in C/C++
- **Machine-Vision** Calibration to establish precision robot coordinates.
- **Integration** of various real time third-party measurement devices.
- **User Interface** Allowing users to fluidly interact with the multi-threaded applications

Lead Robotics Software Engineer at Seagate Technology **Mar. 2017-Mar. 2019**

Developing software for cutting edge processes in digital storage technology. My contributions include:

- **Windows C# .NET** proprietary machine and vision process controls
- **Support** core vision libraries in C/C++
- **Cognex** VisionPro API integration
- **Machine-Vision Calibration** to establish precision robot coordinates
- **Motion Control** Kinematics, pick-n-place, multi-axis coordination, Quantum HSM framework
- **User Interface** Allowing users to fluidly interact with the multi-threaded application
- **Version Control** Using SVN, TFS and Agile/Scrum using Jira
- **OOP** Heavy emphasis on encapsulation, inheritance, polymorphism, and robust design patterns

Lead Controls Engineer at Sorenson Engineering Inc. **Sep. 2014-Mar. 2016**

Leading controls software development for high-volume manufacturing. I developed core software and worked closely with Mechanical Engineers to build proof of concept products (R&D environment).

- **Fieldbus Integration** – Integrating third-party hardware/software nodes into a controls network
- **Motion Control** – Kinematics, motor sizing, pick-n-place, multi-axis synchronization, and axis coupling
- **Vision Inspection** – Driving digital cameras (Cognex, Baumer/VeriSens) via native C++ SDKs
- **Eliminated** need for expensive camming software license and a measurement sensor.
- **Increased** machine PPM by decreasing rotor inertia ratio by 140% for tighter position control (VSIII)