Johnathan J. Flaggs
Software Engineer
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Dear Team,

Please accept this letter and the accompanying resume as an expression of my interest in your open Software Engineer position. My primary career focus has been in technology. Specifically in Software Architecture and Algorithm Development, Industrial Automation, and Technology Consulting. Along the way I developed a passion for Algorithmic Trading and Quantitative Analysis of the financial markets.

I graduated from the University of California, Riverside with a Bachelor's degree in Mechanical Engineering. I currently develop software for Seagate Technology as a Software and Robotics Engineer.

I have worked with industries including manufacturing, aerospace, medical, industrial packaging, OEM automation, and digital storage. My contributions in these industries have been in robotics, industrial software development, machine vision, multi-fieldbus integration, User Interface (UI) development, power planning, documentation control, and much more. I am truly privileged to have the industry experience and exposure that I do; and I have been humbled by the professional opportunities I have been part of.

In my personal time I enjoy studying the markets to quantify trading edges, developing custom indicators, and working on my custom charting and back-testing software (JLAB). I also enjoy consulting for Web Development and Embedded Development when there is an opportunity to do so. Consulting allows me to gain exposure to many technology stacks that I wouldn't otherwise be inclined to use. I believe that experience developing with multiple technologies (from industrial robotics to website development and everything in between) strongly contributes to a more efficient, effective, and well-rounded approaches to new problems.

I would like to reiterate my strong interest in your Software Engineer position and I look forward to an opportunity to discuss details in person. Please feel free to contact me by phone at 916-397-5938 or by email at johnathanflaggs@gmail.com if I may provide you with any additional information. Thank you for your time.

Sincerely,

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Highly professional, competent, personable, and team-orientated. Possesses strong problem-solving, organizational, and time-management abilities. Professional references available upon request.

Education

University of California, Riverside (UCR) **Sep. 2010-Jun. 2014**
- BSME, BCOE, Dept. of Mechanical Engineering

University of California, Davis (UCD) **Aug. 2013-Sep. 2013**
- Controls Courses. Dept. of Mechanical and Aerospace Engineering

Professional Engineering Experience

Software Automation and Robotics Engineer at Seagate Technology **Mar. 2017-Present**

Developing software for cutting edge processes in digital storage technology. My contributions include:
- ***Windows*** *C# proprietary machine and vision process controls*
- ***COGNEX*** *VisionPro API integration*
- ***Machine-Vision Calibration*** *to establish precision robot coordinates.*
- ***Integration*** *of various third-party devices.*
- ***Motion Control*** *– Using Quantum HSM Framework*
- ***User Interface*** *– Allowing users to fluidly interact with the application.*
- ***Version Control*** *– Using SVN, TFS and Agile/Scrum using Jira.*
- ***OOP*** *– Heavy emphasis on encapsulation, inheritance, polymorphism, and robust design patterns.*

Software Controls Engineer at Dynamic Automation **Apr. 2016-Apr 2017**

Developing software for specialized industrial machines in the medical, automotive, and aerospace industries. My contributions include:
- ***PLC/HMI*** *programming in the Rockwell/Allen Bradley suite*
- ***FANUC*** *Robot programming and iRVision application development*
- ***COGNEX*** *In-Sight vision programming*
- ***MagneMotion*** *MagneMover LITE programming*
- ***Integration*** *of various third-party devices (RS-232/485 serial devices, barcode scanners, etc)*
- ***Windows*** *Batch/C# programming for supporting IT and OT needs.*

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

Coordinating with the Technology Engineering (TE) team to develop unique machines for high-volume manufacturing. Specifically, I develop software to control industrial robotics hardware such as: stepper/servo motors, linear motors, industrial cameras, and various other IO. My contributions include:
- ***Power Distribution*** *–Layout of power distribution from the main line control components.*
- ***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*
- ***Enhanced*** *a machine's performance by decreasing rotor-inertia ratio by 140% for tighter position control (VSIII)*
- ***Vision Inspection*** *– Driving digital cameras (Cognex, Baumer/VeriSens)*
- ***Reduced*** *machine development cost by:*
  - *Implementing PTP motion rather than software cammed motion (CBM)*
  - *Eliminating the need for an expensive measurement sensor (CBM)*

Technical Toolset

My Development Platforms:

- RSLogix/FactoryTalk
- Beckhoff TwinCAT
- MagneMotion
- Fanuc Robotics
- Fanuc iRVision
- Cognex In-Sight
- Baumer/VeriSens
- Visual Studio
- Matlab/Simulink
- SVN/GIT/Jira
- Atmel Studio
- CodeBlocks
- Solidworks
- Np++, Sublime
- Brackets/Atom
- TradeStation
- NinjaTrader 8
- Binance API
- Oanda API

My Development Languages:

- PLC: ST, SFC, FBD, LL
- Embedded: C, C++
- Web: HTML, CSS, JS
- Windows: C#, BAT
- Robotics: TP, TP++

Academic Engineering Experience

Numerical Analysis and CAD Projects at UCR/UCD **Mar. 2013-Jun. 2014**

- *Collaborated* with a team of three senior design classmates to design, fabricate, and verify an intercooler leak-test system for Ironman Parts and Services©.
- *Collaborated* with group of 11 undergraduates to design, fabricate, and test turbine blades for the EPA P3 2014 project. The turbine will be used to extract tidal energy after EPA final approval.
- *Designed* a Lag-Lead compensator using Modern Control Theory, MATLAB Sisotool, and Simulink for tuning and verification.
- *Modeled* thermal distributions in a Composite Printed Wiring Board in MATLAB by using the Finite Difference Method to solve Laplaces' Equation in two dimensions.
- *Programmed* a MATLAB simulation of a robotic arm with two DOF. Simulation uses ode45 to solve the differential equations of motion as the robotic arm is instructed to translate.
- *Developed* a SolidWorks model and 3-dimensional stress analysis of a bicycle crank-arm for the purpose of a material recommendation which meets factor of safety requirements.
- *Scaled-down* bridge design, fabrication, and failure prediction using MATLAB, SolidWorks, and 2D stress analysis. Models were then experimentally verified to predict bridge failure within 1%.

Bourns College of Engineering: Undergraduate Research **Nov. 2012-Sep. 2014**

- *Developed* a control systems model for a nine-segment bipedal robot based on human gait cycle studies. The model uses the ZMP criteria for stability in the forward solution, and uses interpolated human gait data in the inverse dynamics solution.

Technical Elective Courses at UCR/UCD **Jan. 2013-Jun. 2014**

- *Completed* the following courses as technical electives in addition to the required engineering courses:

- Feedback Control II
- Heat Transfer II
- Dynamic Analysis of Mechanisms
- Bipedal Walking Research

Involvement

Kappa Sigma, Riverside (KΣ) **Jan. 2012-Present**

- Completed over 100 hours of volunteer service--collaborating with organizations such as Habitat for Humanity, Embrace, SHARP at UCR, and American Red Cross.
- Member of the ΣY Brotherhood Committee. Received the 2013 KΣ Service Award for commitment to my community