

# WESLEY BARRIER

2909 VESPER ROAD • RICHMOND, VA 23225 • WESBARRIER@GMAIL.COM • (616)581-9374

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## EDUCATION

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***Master of Science (M.S.), Electrical & Computer Engineering*** January 2014 – Present  
Virginia Commonwealth University Richmond, VA

- GPA: 4.0 (Degree in progress)

***Bachelor of Science (B.S.), Mechanical Engineering*** Graduated March 2013  
Kettering University Flint, MI

- GPA: 3.0

## WORK EXPERIENCE

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***Mechanical Engineer*** September 2014 – Present  
**Progressive Design, Inc** Richmond, VA

- Working as a project manager and technical expert for multiple Dominion capital projects ranging between \$1 million and \$15 million in the automation, controls, cybersecurity, and performance software areas.
- Currently mapping control networks and identifying security concerns for 51 different Dominion sites.
- Created software using VBA behind Excel that automatically reported key information for start up and shutdown events on 15 different coal fired boilers for Dominion Virginia Power, in accordance with the EPA's Mercury Air Toxicity Survey regulations. This report ran data from dozens of PI Datalog points, and outputted a fully formatted event table with details for each event, compiling many man-hours worth of data acquisition for each event in less than one minute. This was an 8 month contract.
- Continually refined, version-controlled, and updated the automated reports for Dominion Virginia Power's 15 boiler units, in order to effortlessly account and filter for sporadic, non-regular events. This required communication with each plant's Controls group, to facilitate logic changes.
- Recreated and managed similar Start-up and Shutdown reporting software for Dominion's four biomass boilers under IB-MACT. This was a separate 5 month contract.
- Provided technical expertise and drove station product review on predictive modeling software (GP Strategies EtaPRO) for 37 coal, oil, natural gas, and biomass units for Dominion Virginia Power. Trained as an EtaPRO, VirtualPlant, and Advanced Pattern Recognition (APR) administrator. Created pages and calculated base equations for the 37 units. This was a separate 24 month project.
- Developed and standardized inspection and tuning reports for Dominion, in order to comply with MATS
- Created, red-lined, and reviewed scopes of work, equipment datasheets, line lists, P&IDs, and other drawings for multiple company clients, including Dominion, Honeywell, and Philip Morris.

***Discipline Mechanical Engineer*** July 2012 – August 2014  
**Chicago Bridge & Iron** Richmond, VA

- Assumed a Lead Mechanical Design Engineer role in the Capital Project group of the Simplot Sulf-N Demonstration Facility located in Lathrop, California. Led and guided the Mechanical Design group through start-up attempts, Capital improvements, and 3D Model As-built efforts in a high-pace, proof-of-concept setting.
- Performed stress analysis and other critical functions in the support of new mechanical components for chemical processes on Capital Projects. Thermal growth and weight/operating stresses are of particular concentration.
- Estimated Mechanical scopes based on contractor quotes, Process Engineer requirements, and proprietary process estimating tools, and presented budgets to Project Managers.
- Provided weekly project status updates to the Project Manager on each project.
- Created software using VBA behind Excel that reported string deformation measurements to multiple RS-232 (Serial) ports over DDE for Research & Development.

***Mechanical Engineering Co –Op*** April 2009 – January 2012  
**Brembo North America** Homer, MI

- Designed and implemented pneumatic Go/No-Go devices that measured assembly-line parts at micron-level accuracy and identified faulty parts for a performance brake manufacturer with clients including Ford, Chrysler, GM Mercedes, BMW, Ferrari, Lamborghini/Audi, Formula 1, and NASCAR.

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- Wrote a 68-page thesis identifying misunderstandings and discrepancies in the micron-level measurement of key flatness deviations between Brembo and Chrysler, as well as detailing two original line process changes and a change in brake rotor design necessary to correct the problem and ensure compliance.
- Created twenty Visual Basic for Applications (VBA) programs and macros that automated the input, parsing, and reformatting of hundreds of thousands of lines of raw data from line measurements in MS Excel and Minitab, reducing jobs that would have taken months to a matter of minutes.
- Created a VBA macro with Excel that compiled Resonance Frequency and micron-level variance data from line servicemen into management reports, reducing data entry time from five hours to two minutes per week, in support of the KAIZEN team.

## *Freelance Mechanic*

### Self – Employed

- Diagnosed and repaired internal engine, drivetrain, suspension, braking, cooling, and electrical and electromechanical issues in Japanese, German, American, and British vehicles.
- Created a Turbocharger Sizing Calculator with VBA/Excel that calculated and matched the correct Turbocharger to an input engine by computing seventeen independent variables, and ported the system to HTML/CSS/JAVA for online use.

January 2008 – Present

Flint, MI and Richmond, VA

## **TECHNICAL SKILLS**

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- **Software:** AutoCAD, UGS-NX5 with Finite Element Analysis, SolidWorks2009, CATIA, MS Excel, MS Word, MS PowerPoint, MS Visio, MS Visual Basic Programming, C Programming, C++ Programming, Powershell Programming, Minitab, Caesar II, PV Elite, Autodesk Simulation Mechanical, PI ProcessBook, PI Datalink, Rockwell RSLogix 5000, FCYCLE, CCYCLE, GP Strategies EtaPRO Plant Performance Software, PC1D, Cisco Packet Tracer
- **Power Engineering:** Heat balancing, Heat input curves, Heat rate coefficients, MATS Start-up & Shutdown reporting, MACT Start-up & Shutdown reporting
- **Project Management:** Budgeting, Estimating, Scheduling, Lean Six Sigma, Appropriations Request Presenting and Packaging, Contractor Supervision
- **Manufacturing and Quality Engineering:** Stability, Capability, CMM Programming, CNC Programming, FANUC Robotic Arm Programming, Resonance Frequency Testing, Micron-level Roughness Analysis
- **Automotive Engineering:** Theoretical Airflow Analysis, Theoretical Temperature and Pressure Iterative Analysis, Open-Loop Fuel & Ignition Table Base-mapping and Tuning, Theoretical Turbocharger Sizing, Mechanical Diagnosis and Repair, Electrical Diagnosis and Repair, Custom Electrical Fuel Injection Systems Construction