Muhammad Bilal Ahmed

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2016 Mechanical Engineering, University of Waterloo

SUMARRY OF SKILLS

- Certified SolidWorks associate with hands-on mechanical design experience in GD&T and DFM
- Extensive engineering analysis experience including FEA, root cause and multi-body dynamics
- Diverse skills in software and electronics with experience in MATLAB, OpenCV, C++ and Arduino
- Passionate about product design and manufacturing with proven ambition to contribute creative ideas

WORK EXPERIENCE

Apple Inc.   Cupertino, CA, USA

Manufacturing Quality Engineer Intern | Soft Goods Manufacturing Design   Sept. – Dec. 2015

- Led fixture design for on-line automated inspection system, with multiple vendors, through DFM reviews
- Developed metrology, using MATLAB, OpenCV, and CCD for automated inspection of watch bands and cases
- Formulated system specifications by studying existing processes and product spec while at factories in China
- Calculated return on investment of process automation including quality, cost and efficiency benefits

Instron   Norwood, MA, USA

Mechatronics Co-op | Electro-Mechanical Strain Products   Jan. – Apr. 2015

- Decreased sensor noise by 20% of vision strain gauge (AVE 2) through DOE and analysis in MATLAB

Singapore University of Technology and Design   Singapore

Vehicle Research Engineer Co-op | Engineering Product Development   May. – Aug. 2014

- Developed vehicle mass identification system, with 3% accuracy, for the SMART-NUS autonomous golf cart using MATLAB, Simulink, ECU, IMU, encoder, voltage and current sensors (See: https://youtu.be/R2B-pm28eZc)
- Programmed a semi-automated tool to decode vehicle sensor signals; validated method on Mitsubishi iMiev
- Built a vehicle signal simulator in MATLAB to significantly reduce testing time for CAN bus hardware

Toyota Motor Manufacturing Canada   Woodstock, ON, Canada

Product Engineering Student | Quality Control Engineering   Sept. – Dec. 2013

- Eliminated high rate steering offset defect through extensive root cause analysis of RAV 4 assembly
- Reduced downtime of vehicle test line by identifying flaw in inspection software and devising countermeasures
- Improved correlation of electric heater test significantly by optimizing test criteria for different vehicle states

Amphenol Canada Corp.   Toronto, ON, Canada

Design Engineer Co-op | Data Telecom   Jan. – Apr. 2013

- Designed low form factor connectors, and produced 3D models and technical drawings in Solidworks
- Optimized design of socket contacts using FEA to eliminate static yielding of stamped metal contacts
- Gained exposure to GD&T, and Design For Manufacturability (DFM) for plastic injection molded parts
- Developed new connector concepts with creative designs to reduce form factor

University of Waterloo Rocketry Team | Mechanical Engineer Co-op   May – Aug. 2012

- Fabricated parts in shop, assembled, and performed prototype validation for 20ft liquid bipropellant rocket

EDUCATION & PROJECTS

University of Waterloo   Waterloo, ON, Canada

BASc, Honors Mechanical Engineering, Co-operative Program: **3.70 GPA**   2011 – Apr. 2016

Certified SolidWorks Associate | Dassault Systemes   Sept. 2012

University of Waterloo Alternative Fuels Team   May 2015 – Apr. 2016

- Constructed model to characterize vehicle dynamics and stability of modified Chevrolet Camaro

Autonomous Drone Battery Swapping Station | Capstone Design Project   May 2015 – Apr. 2016

- Prototyped robotic battery swapping station for quadrotors using actuator, Arduino, linear rails among others