Muhammad Bilal Ahmed

2016 Mechanical Engineering, University of Waterloo

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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**

Vehide 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