

# Mustafa Sheikh

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## Skills

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**Languages:** Python, C/C++ , MATLAB/Simulink, SolidWorks, UML, LabView

**Tools:** dSPACE Tools, Vector CANoe, SAFe, Git, SVN, Jira, 8D, 5 whys, CAN/LIN, AUTOSAR, Testing

## Experience

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**Senior Virtual Application Engineer,** General Motors – Milford, MI Nov 2022 – Sept 2024

Utilized hardware virtualization to accelerate delivery of software for Software-Defined Vehicle platform.

- Championed and secured organizational buy-in for \$2 million Synopsys Virtualizer based 'shift-left' approach to Connectivity Module development enabling exploratory early designs.
- Led cross-functional development and delivery of Synopsys Virtualizer based Occupant Safety Module with test software, accelerating integration testing efforts by 4 months ahead of official software availability.
- Successfully launched next-generation ASTC Vlab based Central Gateway Module 8 months ahead of hardware schedule, driving concept-to-release progress and facilitating early software testing and integration.
- Leveraged expertise in virtual workflows to collaborate with product owners and release train engineers to integrate virtual hardware team into enterprise level agile framework.
- Scrum Lead for team of 12 as part SAFe for CAN and Ethernet ECUs for GM's SDV Platform.
- Developed virtualization solution benchmarks serving as the basis for tool-chain decisions worth \$100k+.
- Utilized Vehicle Spy, CANoe, and WireShark to perform Root-Cause Analysis on ECUs.

**Senior Design and Release Engineer,** General Motors – Warren, MI Mar 2021 – Nov 2022

Developed features for legacy PHEV and EV OnStar customers and next generation Telematics modules.

- Spearheaded sourcing of Telematics Module by leading a cross-functional team through RFIs and TDRs.
- Leveraged agile principles to preempt and resolve issues while keeping leadership apprised.
- Helped safeguard \$10s of millions in revenue and critical safety features for hundreds of thousands of OnStar customers impacted by the 2G/3G sunset by developing a mitigation plan with senior leaders.
- Worked with Resident Engineers and SMEs to issue ECRs and resolve production PRTS/AIMS issues.
- Maintained SW and HW BOMS in addition to SW Calibrations while supporting PPAP for new Part Assemblies.
- Maintained Device Transmittals and Schematic for Telematics Modules.
- Worked with Certification teams to ensure correct procedures were followed.

**Telematics System Integration Lead,** Aerotek (Contract at GM) – Warren, MI Sept 2020 – Mar 2021

Vehicle Side CAN Integration lead for OnStar 2G/3G Sunset Adapter project for 100k + active legacy customers.

- Led multidisciplinary development meetings for features representing \$10s of millions in business value.
- Proactively tackled development and implementation challenges in test setups and provided direction for creating electrical testing harnesses while mentoring junior engineers.
- Engaged system architects, subject experts, and suppliers to work on OTA related change requests for existing telematics modules to spearhead GM's evolving OTA strategy.

**Software Controls Engineer,** FAW US Research and Development – Plymouth, MI Feb 2020 – Aug 2020

Part of a team of controls engineers, systems engineers, and integration engineers for L4 AV Planning and Control.

- Researched Vehicle Dynamics models and methods of Lateral Control for vehicles under typical highway scenarios in MATLAB/Simulink for ADAS and autonomy.
- Independently developed and executed test plans for PID based longitudinal and LQR based lateral control algorithms using MATLAB, allowing team to catch and resolve issues before integration.
- Worked closely with integration team to integrate and debug Software Releases in CarMaker SIL environment.

- Developed Object Oriented MATLAB scripts to analyze and visualize CAN data from MobilEye EyeQ4 system.

**End-of-Line Tester Development Engineer**, Molex LLC – Rochester Hills, MI Nov 2018 – Feb 2020

Automation solution developer for electronic module production and launch activities for manufacturing services.

- Developed multi-threaded Python scripts to flash Firmware on in-vehicle Ethernet Gateway subsystem automating a 60 minute error-prone manual process down to 15 minutes with logs.
- Designed and documented manufacturing test solutions using UML methods and engaged in peer-review to verify functionality ensuring first-time quality of solutions in Python and LabView.
- Led identification and mitigation of risks in production lines during PFMEA discussions with a global cross-functional team for Ethernet Switch Module subsystems and high-speed cables.
- Partnered with senior leaders to address production rework issues, creating timely work instructions that improved reliability and reduced testing time for multiple OEM programs.
- Led Root Cause Analysis and supported 8D and 5 why presentations for launch issues.

**Senior HIL Automation Engineer**, Ford Motor Company – Dearborn, MI Apr 2013 – Nov 2018

Led design of Software and Hardware solutions for automated testing of highly distributed Infotainment, Body, and ADAS features as part of an interdisciplinary global team.

- Drove the integration and extension of Ford Sync automation tool created in Python enabling automated Infotainment testing at scale saving 100s of human hours.
- Initiated, designed, and delivered dSPACE license restructuring efforts that freed up \$80k worth of wasted software licenses while also allowing team to scale up from 10 to 40 engineers.
- Boosted testing efficiency with a Python-based automated Electronic Latch feature testing fixture, enabling continuous 24/7 remote testing and accelerating product development.
- Utilized Simulink based dSPACE Blocksets and Libraries to maintain and update Simulink plant models.

**HIL Engineer**, EASi (Contract at Ford) – Dearborn, MI June 2012 – Apr 2013

Led HIL Testing and Automation activities for HIL subsystems by integrating and extending automation solutions.

- Improved Robotic HMI tester by increasing maintainability and setup time by 50%.
- Slashed HIL part costs by 75% through BOM management of 3 vehicle platforms, involving 100s of components.
- Interpreted complex system requirements for Body and Infotainment features and translated into test-specifications and plans.

**Intern**, Fraunhofer USA – Plymouth, MI Oct 2011 – Mar 2012

- Validated and aligned high-power Diode Laser systems.
- Supported run-off production assisting engineers in assembly and fixture design.

**Summer Intern**, Institute for Imaging Research – Windsor, ON Jun 2011 – Oct 2011

- Utilized MATLAB to analyze for performing root-cause analysis and modeling of Ultrasonic sensor noise.
- Presented data and conclusions to leadership of the institute at end-of-term.

## Education

**University of Windsor** – BSc in Physics Oct 2011

**University of Windsor** – BASc in Electrical Engineering Oct 2009