

ALI ABDALLAH

(313) 333-0253 - ahabdallah27@gmail.com - linkedin.com/in/ahabdallah/

SKILLS

- MATLAB/Simulink
- C++
- Java
- Python
- SQL
- Assembly
- Arduino
- Raspberry Pi
- Signal & Image Processing
- Product Development
- Design History File
- Autodesk Inventor

EDUCATION

- **M.S. Robotics**, University of Michigan Aug. 2021 – May 2024
 - Concentration in Sensing
- **M.S. Electrical and Computer Engineering**, University of Michigan Aug. 2015 – Dec. 2018
 - Concentration in Control Systems
 - GPA: 3.81
- **B.S. Biomedical Engineering**, Wayne State University Aug. 2010 – May 2014
 - Concentration in Bioinstrumentation
 - GPA: 3.77

RELEVANT COURSEWORK

- Control Systems Analysis & Design
- Linear Systems Theory
- Digital Control Systems
- Intro. to Microcomputers
- Algorithms and Data Structures
- Self Driving Cars: Perception and Control
- SLAM
- Statistics
- Biomedical Signals and Systems
- Biomedical Engineering Design I-VIII

WORK EXPERIENCE

- **Ford Performance Controls Engineer**, Ford Motor Company Jan. 2020 – Present
 - Selected as Chassis representative for Ford Performance Technology Exchange program - 2-3 year program to improve software development within Ford Performance
 - Lead development of suspension software – 2021.5 F150 Raptor software in production
 - Lead vehicle validation, software flashing, requirements development, FMEA
 - Support building flashable software, ISO 26262
 - Pre-rank submitted patent ideas based on feasibility and novelty
- **Autonomous Vehicle Controls & Algorithm Engineer I & II**, Ford Motor Company Nov. 2015 – Dec. 2019
 - Developed Ford's first Autonomous Fail Functional Vehicle
 - Led development of Fail Functional Brake System specifications for Autonomous Vehicle
 - Led development of interface documents to coordinate with supplier
 - Led development of Vehicle Testing Automation Tool
 - Supported development of test criteria for brake specification validation
 - Supported vehicle testing of Brake System
 - Supported ISO 26262 and FMEA development
- **Software Developer/Systems Analyst**, General Motors Jun. 2014 – Nov. 2015
 - Developed programs that reached production after 9 months of training
 - Experience in the design and development of Global Product Development (GPD) IT's Next-Gen Data Integration Strategy: Data Integration Hub (GPD Hub)
 - Developed and Tested the Extract, Transform, Load (ETL) Programs for Top 4 GPD Gold Source Systems which involved over 500 programs and tables
 - GPD Hub Strategy will reduce 'Cycle Time' for System-to-System Integration in new IT Innovation Project by 50%
 - Mentored and trained new team members on standards and implementation of programs/process
- **Research Assistant**, Enabling Technologies Laboratory Jan. 2014 – Apr. 2014
 - Led development of system to notify users of improper seated posture via their smartphone in real time
- **MATLAB and Robotics Course Grader**, Wayne State University Aug. 2013 – Apr. 2014
 - Helped students with questions regarding programming material and graded their assignments
- **Internship, Biomedical Design Engineer**, Humanetics Innovative Solutions May 2013 – Aug. 2013
 - Led a team of interns determine a new way to measure displacement in a small closed cavity
 - Designed new wire housing per customer's request
 - Updated and redrew CAD models to company standards

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- **Research Assistant, Lurie Nanofabrication Facility** Jun. 2012 – Aug. 2012
 - Selected for REU position by National Nanotechnology Infrastructure Network (NNIN)
 - Used Dip Pen Nanolithography to pattern biological molecules to investigate energy transfer pathway

DESIGN PROJECTS

- **Bicycle Stabilization** Oct. 2018 – Nov. 2018
 - Developed PD controller that kept the bicycle upright after a push
 - Used linear actuator, 10 DOF IMU, and Arduino to measure roll and control steering wheel angle
- **Bird Feeder Portion Control** Feb. 2018 – Feb. 2018
 - 3D printed bird feed casing and programmed Arduino with ultrasonic sensors and motor to detect birds and dispense food
- **Vehicle Obstacle Avoidance** Dec. 2017 – Dec. 2017
 - Developed PID controller that controlled steering angle to fixed path to avoid track walls and to constant steering angle during lane changes to avoid obstacles
 - Fastest Algorithm time of 1.6s for full track completion
- **Posture Map App** Jan. 2016 – Jun. 2016
 - Developed pressure map of seated position and displayed information with Android app
- **GM Engineering Work Order (EWO) System App** Jul. 2015 - Aug. 2015
 - Developed Android app to allow users to approve/assign/view EWO information in real time
- **bmeX Hydrate+** Jul. 2013 – Aug. 2014
 - Started personal project to design a “quantified-self” water bottle
 - Successfully designed a proof-of-concept in order to show to potential investors/competitions
 - Funded by Engineering Alumni Association
- **Nursing Simulation Lab** Apr. 2013 – May 2014
 - Observed and worked with the lab to improve the patient-nurse interaction with new EMR software
- **Punching Bag Force Reading for Students** Oct. 2012 – Nov. 2012
 - Programmed Arduino to plot force readings in real time via MATLAB
 - Calibrated force sensor so that middle school students at the YES! Expo can punch the punching bag and view their data after
- **Prosthetic Pressure** Sep. 2011 – Aug. 2012
 - Designed a pressure mapping system to indicate when residual limb pressure was imbalanced
- **Automated Diabetes Testing Device for the One-Armed/Disabled Patient** Sep. 2010 – Aug. 2011
 - Designed and programmed device that allowed individuals to conveniently test their blood sugar

PATENTS

- **Driver Training System**
 - System to optimize human driver behavior via an Autonomous Vehicle in a shared mode
 - US Patent No. US10246101B2

AWARDS

- Finalist in 2016 Ford Motor Co. Connected Health App Challenge
- Third Place in 2015 General Motors IT Hackathon
- First place presentation in 2013 Wayne State Biomedical Engineering Design Exhibit
- Finalist and Honorable Mention in 2011 ASME Undergraduate Design Competition in Rehabilitation and Assistive Devices
- Third Place in 2011 Blackstone Sharktank: Competition where students pitch a business idea to businessmen

PUBLICATIONS

- Abdallah, A. "Patterning of Biomolecules Using Dip Pen Nanolithography"; 2012 NNIN REU Research Accomplishments, 2-3, November 2012. <http://www.nnin.org/reu/past-years/2012-nnin-reu-program>
- Abdallah, A., Heid, B., Khan, H., Valikodath, N. "Automated Diabetes Testing Device for the One-Armed/Disabled Patient"; ASME Publishing, 627-628, 2011. <http://proceedings.asmedigitalcollection.asme.org/proceeding.aspx?articleid=1715431>

EXTRACURRICULAR ACTIVITIES

- Led group of students on alternate spring break trip to build water system for poor community in Honduras
- Member of Engineering Honor Society (Tau Beta Pi)
- Co-founder of Water Compilation Organization and National Student Water Association
- Mentored and tutored students aged 8-16 at Wise Instruction for Scholastic Excellence