Taha A. Shafa

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Controls/Robotics Engineer

Engineering Design, Development and Implementation

Engineer on track to receive dual MS degrees in computer/electrical engineering and systems engineering focusing in control systems and robotics with relevant professional and research experience. Seeking a full-time research position.

Electrical and Technical Skills

MATLAB | Simulink | C++ | C# | Python | LabVIEW | SOLIDWORKS | AutoCAD | PLC | Express PCB

Education

Arizona State University (Dual MS) — Tempe, AZ
M.S. in Computer/Electrical Engineering (EE Track) — Anticipated Graduation: May 2020
M.S. in Engineering (Robotic Systems Track) — **Current GPA: 3.73**
Drexel University (Undergraduate) — Philadelphia, PA
B.S.E. in Electrical Engineering — June 2015

Academic Projects

ASU Master's Thesis **– Design and Control of Laminate Bipedal Robot**

- Designed and prototyped bipedal roadrunner robot
- Developed simulations on python and unity for motor selection
- Derived model of bipedal robot for model-based control using Kane's method and Lagrange
- Applied robust LQR control design techniques to develop control system for balancing and walking

ASU Research Project **– Optimize Performance of 2DoF Laminate Quadrupedal Robot**

- Integrated previously incompatible servos and IMU
- Collected data from IMU linking robot orientation to leg movement
- Implemented PID controls to observe how controls affected previously collected data

Drexel Senior Design **– System Identification for Unknown Motor Parameters**

- Utilized SysID techniques to analyze input motor's frequency response and output transfer function
- Designed electromechanical fixture to accommodate motors of variable sizes
- Created PCB to run motors of various sizes with adjustable power outputs

Professional Experience

Electrical Design Engineer — Philadelphia, PA
Cardone Industries — June 2016 – June 2018

- Lead electrical and computer design processes to develop machines testing electromechanical car parts
- Develop analog and digital circuits that process input/output signals from electromechanical test units
- Program embedded controllers to automate test processes for large scale data acquisition
- Develop PID controllers to optimize design functionality
- Conduct R&D on electromechanical systems to determine optimal embedded system circuit design
- Create detailed electrical schematic of final circuit design using AutoCAD

Electrical Test Engineer (Contract Position) — West Chester, PA
CTDI (Communications Test Design Inc.) — February 2016 – May 2016

- Programmed automated test procedures in C# for quality control
- Reverse engineered and restored malfunctioning circuits
- Reverse engineered existing program in Amazon Echo devices to perform diagnostics
- Designed intuitive HMI for operating test fixtures

Hardware Engineer, (Contract Position) — Norristown, PA
Megger — June 2015 – December 2015

- Redesigned a battery charger circuit to operate without obsolete components
- Extensively redesigned the electrical PCB layout in cases without direct replacements available
- Conducted R&D tests on battery charger circuit to verify functionality