MITCHELL D. JOHNSON

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WORK EXPERIENCE

Boeing Defense, Space and Security – *Software Engineer;* Tukwila, WA June 2020 – Present
- Halved product regression test time and reduced defects by developing an automated hardware test framework (Python)
- Updated legacy embedded real-time flight software to meet export control requirements (C)
- Completed several bug fixes and maintainability improvements on in-house hardware test applications (C#)
- Gained familiarity with the design and architecture of high-performance airborne RF processing systems

Boeing Research and Technology – *Manufacturing Automation Engineer;* Everett, WA May 2018 – June 2020
- Responsible for day-to-day support and long-term improvement projects in a robotic manufacturing environment
- Developed Web interface for product verification tracking using robot telemetry data (Cloud Foundry, SQL, Python, Django)
- Prototyped algorithm and implemented GUI for computer vision system to detect drill bit damage (C++, OpenCV, MFC)
- Directed team of UW faculty and graduate students in data science project to identify and predict premature drill bit failures
- Operated industrial robots and collected and analyzed quality data during drill process development testing
- Collaborated across disciplines to solve production issues without supervision during startup of 777X wing assembly line

US House Committee on Science, Space and Technology – *Staff Intern;* Washington, D.C. January 2018 – April 2018
- Developed skills for research and technology advocacy within both the public and private sectors

ExxonMobil – *Fixed Equipment Co-op (2 terms);* Baytown, TX January 2015 – May 2015, May 2016 – August 2016
- Designed 15+ piping and heat exchanger repairs in compliance with company and industry design specifications
- Learned to effectively navigate complex engineering organization and excel under challenging workload

EDUCATION

University of Washington Master of Science in Electrical and Computer Engineering December 2020
Coursework: Embedded and Real-Time Systems, Mobile Robotics, Computer Vision, HW/SW Interface, Data Structures and Algorithms, Machine Learning, Deep Learning, Digital Signal Processing, Linear Systems Theory *GPA: 3.85*

University of Texas at Austin Bachelor of Science in Mechanical Engineering with High Honors May 2018
Engineering Honors Program; Minor in Business *GPA: 3.92*

University of Texas System Bill Archer Fellowship Program Spring 2018
Washington, D.C., internship and academic fellowship program

PROJECTS

GPS Data Processing (Personal) – Submitted two pull requests to add IMU data collection to Google's open-source Android GNSS measurement recording app. Wrote Python application to calculate GPS position from raw pseudoranges (Python, Java)

ROSberry Pi Drone (UW) – Self-built drone controlled by Raspberry Pi communicating with Arduino microcontroller over USB. Xbox controller used for control inputs to Raspberry Pi through Bluetooth interface (C, C++, Python, ROS)

Deep Learning Class Competition (UW) – Placed 3rd out of 29 students in graduate image recognition Kaggle competition. Used convolutional neural network with dropout regularization and cutout data augmentation (Pytorch)

Autonomous RC Car (UW) – ROS package for waypoint following with path planning (A*), localization (particle filter) and path following (PID) capability (Python, ROS, Numpy)

Automated Pipe Viscometer Design Study (UT) – Team lead for senior design project. Conducted Monte Carlo simulation to size piping, determine sensor error budgets and estimate system measurement repeatability (MATLAB)

RESEARCH EXPERIENCE

RAPID Drilling Research Consortium – *Undergraduate Research Assistant;* Austin, TX February 2016 – April 2018
- Published Undergraduate Honors Thesis and three conference papers on automation of drilling fluid rheology testing

LEADERSHIP EXPERIENCE

UT Austin ME Undergraduate Advisory Board – *Founder* Spring 2016 – Fall 2017
- Advocated successfully for new integrated ME BS/MS program as member of ME Curriculum Committee

HONORS & AWARDS

- 1st Place, UT Undergraduate Research Showdown, 2017
- UT Unrestricted Endowed Presidential Scholarship, 2017

LANGUAGES & TECHNOLOGIES

Python (Django, Pytorch, Pandas, Numpy), C, C++, SQL, Robot Operating System (ROS)