

REESE GRIMSLEY

Curriculum Vitae

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EDUCATION

Carnegie Mellon University — Ph.D. in Computer Engineering, Silicon Valley, CA & Pittsburgh, PA May 2024

GPA: 4.0 Completed Credits: 37

Focus in Internet of Things Systems, Hardware/Software Interface, Remote Programmability

Texas A&M University — Bachelor of Science in Electrical Engineering, College Station, Texas May 2019

Cumulative GPA: 3.97 Major GPA: 3.95 Completed Hours: 140

Focus in Computer Engineering, Embedded Systems, Signal Processing

Minor in Business, Minor in Mathematics

RESEARCH EXPERIENCE AND PROJECTS

Research Assistant — Carnegie Mellon University, Silicon Valley, Computation and Communication Structures Group, PI Dr. Bob Iannucci Aug. 2019 To Present

TickTalk: Timing API for Federated Cyber-Physical Systems

- Extend the programmability of Federated CPS/IoT to non-specialist programmers
- Build timing and power constructs as first-class citizens into programming semantics
- Hardware virtualization to enable multi-tenant applications to run concurrently on resource-constrained hardware

CommonSense Hardware Platform

- Developing a new sensor hardware platform for low power, high performance computing for use in IoT applications
- Designed first version with Cortex-M4F processor, LoRa radio, SD card, and power supply to run at <75 μ A in sleep state with extensible interface for sensor/actuator/radio-laden boards
- Further designs with improved hardware and form factor in development

Pepperwood Preserve Stream Monitoring with U.S. Geological Survey

- Building and supporting a small deployment of environmental sensors for monitoring stream heights as part of a nearly flood warning system in partnership with the USGS

Undergraduate Research Assistant — Texas A&M Engineering Experiment Station, Embedded Signals Processing Lab, PI Dr. Roozbeh Jafari

Feb. 2017
To
May 2019

A Robust User Interface for IoT using Context-aware Bayesian Fusion

- Developed a framework for a robust User Interface fusing hand gestures and speech queries
- Utilized a microcontroller enabled with accelerometer, gyroscope, and magnetometer data collection via an inertial measurement unit (IMU) for gesture recognition
- Accessed a voice assistant (Google Assistant) for speech recognition, smart-home device control

Context-Aware Activity Recognition using Bluetooth Low Energy for Unsupervised User Localization

- Developed app for Android watch to collect acceleration, angular velocity, heartrate, and local BLE devices
- Extracted statistical features from acceleration, angular velocity and heart rate; contextual features extracted from timestamps and BLE scans
- Evaluated data through traditional Machine Learning algorithms, e.g., SVM, Naïve Bayes, with accuracy of 96%
- Model logical location using local Bluetooth beacons without prior knowledge of beacon location or interrelations

PUBLICATIONS

- C3.** Ali Akbari, Jian Wu, Reese Grimsley, Roozbeh Jafari, Hierarchical Signal Segmentation and Classification for Accurate Activity Recognition, ACM SHL Recognition Challenge in sixth International Workshop on Human Activity Sensing Corpus and Applications, in conjunction with UbiComp, October 12, 2018, Suntec City, Singapore.
- C2.** Jian Wu, Ali Akbari, Reese Grimsley, Roozbeh Jafari, A Decision Level Fusion and Signal Analysis Technique for Activity Segmentation and Recognition on Smart Phones, ACM SHL Recognition Challenge in sixth International Workshop on Human Activity Sensing Corpus and Applications, in conjunction with UbiComp, October 12, 2018, Suntec City
- C1.** Jian Wu, Reese Grimsley, Roozbeh Jafari, A Robust User Interface for IoT using Context-aware Bayesian Fusion, IEEE International Conference on Wearable

and Implantable Body Sensor Networks (BSN), March 4-7, 2018, Las Vegas, NV, USA.

RESEARCH INTERESTS

Internet of Things (IoT), Federated Cyber Physical Systems (CPS), Embedded Systems, Heterogeneous Systems, Low Power Machine Learning, Edge/Fog Computing, Smart Infrastructure/Cities, Environmental Sensing, Low Power Wide Area Networks (LPWAN),

JOB EXPERIENCE

Applications Engineer Intern – Texas Instruments	May 2019
<ul style="list-style-type: none">Continuation of previous internship related to deep learning for image processing on embedded microprocessorsDevelopment of software for automated labeling of bounding boxes in controlled setting with supporting image collection software for two distinct stereo depth camerasDataset creation of basic manufacturing components for object detection models in support of 6-axis pick-and-place manufacturing robots	To Aug. 2019
Applications Engineer Intern – Texas Instruments	May 2018
<ul style="list-style-type: none">Created Deep Learning models in Caffe for image classification and pixel segmentation to be implemented on an embedded systemDeveloped a tool to automate image labeling at pixel-level granularityPublished an application note detailing the process for creating a Deep learning model from data collection to training to testing the model on an embedded platform	To Aug. 2018
Peer Teacher – Texas A&M College of Engineering	Aug. 2017
<ul style="list-style-type: none">Instructed study groups of 10-12 freshmen, emphasizing problem solving skillsGuided students in their education of engineering concepts/programs such as Matlab, LabVIEW, Excel, statistics, etc.Evaluated students on their term-long projects and presentations; graded assignments, quizzes, and exams	To Mar. 2017
Information Center Field Support Intern – ArcBest Technologies	May 2015
<ul style="list-style-type: none">Diagnosed and solved issues with faulty PDAs for logistics personnel	To Aug. 2015

- Initiated replacement of outdated PCs for logistics terminals and branches around the US, generating invoices accordingly
- Communicated with terminal managers to coordinate exchanges of PDAs and related accessories

PROFESSIONAL AFFILIATIONS

IEEE Student Member – Texas A&M Chapter

- Attended workshops for learning various programming languages
- Joined the chapter for the annual Big Event, a campus-wide community service project
- Assisted incoming freshmen with meeting professors in the department and touring the facilities

TECHNICAL SKILLS

Programming Skills: C/C++, Embedded C, Arduino, Python, Matlab, Java, Verilog, Node.js,

Hardware Skills: PCB Design, Surface Mount Assembly, Hardware Debugging in Embedded Systems

GRANTS AND AWARDS

Undergraduate Summer Research Grant (2017)

- Summer-long program for undergraduate students interested in research
- Provided a stipend of \$6,500
- Required submission of a research paper and poster presentation

NSF Travel Award for IEEE Body Sensor Networks Conference (2018)

- Travel award of \$500 allowing students to attend the IEEE BSN conference in Las Vegas, Nevada, co-located with Journal of Biomedical and Health Informatics
- Enabled presentation of a co-authored paper (C1)