Brandon P. DePalo

Full Stack Software Engineer

Contact

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Education

08/2011 - 05/2015

Computer Science (B.S.)

University of Maryland, College Park

08/2011 - 05/2015

Aerospace Engineering (B.S.)

University of Maryland, College Park

GPA 3.73

Languages

Java 10+ yrs.

Python 3+ yrs.

HTML 3+ yrs.

C / C++ 2+ yrs.

C 1+ yrs.

JavaScript / TypeScript 1+ yrs.

FORTRAN 1 yr.

SQL 1+ yrs.

Ruby 1 yr.

OCaml 1 yrs

Prolog 1 yrs

Work Experience

Software Engineer for Transportation Safety **06/2021 - Current**

MITRE | Aberdeen, MD

Working on various software projects supporting the FAA in its goal to increase aviation safety.

IFP, Operations, and Analytics (IOAA) Tool

- Refactored existing Java codebase to use Gradle and proper object oriented design patterns for extendability and reusability. Implemented unit testing
- Containerized existing JavaScript frontend and refactored Java backend
- Working on transitioning legacy frontend from deprecated tools and frameworks such as Bower and AngularJS
- Implemented automated continuous integration / continuous deployment pipeline using GitHub Actions

Voice Data Analysis Capability Tech Transition

- Adjusted Java codebase to allow for automated data processing
- Containerized existing voice transcription capability
- Implemented automated continuous integration / continuous deployment pipeline using Bamboo specs
- Deployed and scaled in AWS to process data in the FAA Enterprise Information Management (EIM) system

FAA-Recognized Identification Area (FRIA) Analysis Tool

- Leading a project to automate analysis and report generation for received FRIA applications

Technologies:
java | python | pyspark | javascript | angularjs | node.js | docker | k8s | helm | aws rancher | linux | IntelliJ | WebStorm | GitHub | Bitbucket | Bamboo

Software Engineer **11/2016 - 06/2021**

Leidos | Edgewood, MD

Supporting Army customer by designing and developing software to help the Chemical Biological Radiological Nuclear (CBRN) Defense mission. Development done in Linux using IntelliJ IDEA and Android Studio.

Lead developer: Parrot

- Developed a set of scalable Java software modules intended to bridge the Common CBRN (Chemical Biological Radiological Nuclear) Sensor Interface (CCSI) to the Integrated Sensor Architecture (ISA)
- Developed Parrot from an initial prototype application into a framework for integrating CBRN sensors with ISA.
- Also developed modules to allow ISA data to be displayed on various Common Operating Pictures (COPs)

Technologies


JUnit 10+ yrs.

Spring / Spring-Boot 6+ yrs.

Gradle / Maven 6+ yrs.

git 6+ yrs.

Docker / Docker-Compose 3+ yrs.

Jupyter / PySpark 1+ yrs.

React 1+ yrs.

Node.js 1+ yrs.

Webpack 1+ yrs.

Angular / AngularJS 1+ yrs.

AWS 1+ yrs.

Kubernetes / Helm 1+ yrs.

GitHub 1+ yrs.

Atlassian 1+ yrs.

Certifications

- CDL Class B w/ Passenger Endorsement
- Part 107 Certified Remote Pilot

Interests

- Aviation
- Big Data
- PC Gaming
- Cooking
- Cars

UAV Autonomy Control Software / Flutter

- Modified old Python software to allow for autonomous control of a UAV by dropping a JSON file into a specified directory. Automated JSON file creation based on chemical hazard detections.
- After successful demonstration, it was decided to mature the software. A new Parrot module was developed to run directly on the UAV hardware (Raspberry Pi / Nvidia TX2). This allowed the ability to add new and more complex capabilities, and control the UAV directly over ISA. A simple Java GUI was developed to send more advanced UAV commands.
- An ISA plugin to the Android Tactical Assault Kit (ATAK) was obtained and extended to allow for UAV control over ISA from an Android device. Using feedback from field demonstrations, the application has continually been improved.
- Demonstrated capability on various quad / hex copters, including Military and COTS

Joint CBRNE Advanced Capability Sets

- Developed a set of software and hardware for soldiers to wear when investigating CBRN hazards.
- Developed an Android application to display current sensor readings and send reports to commanders and upper echelons.
- Designed and manufactured a prototype hardware dongle to connect sensors to a Nett Warrior phone. The dongle was 3D printed; the board was custom designed using geppetto, and then manufactured by gumstix. Custom connectors were ordered and the dongle was assembled by hand.
- The dongle ran a custom built Linux based Yocto OS
- Added OS level rules to control the software based on what sensor was attached

Technologies:
java | python | docker | rancher | IntelliJ | WebStorm | GitLab | CoT | JSON Protobuf | CCSI | ISA | ATAK | AndroidStudio | Android | yocto

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Systems Engineer PDP **07/2015 - 11/2016**

Northrop Grumman | Baltimore, MD

Worked in a rotation program for new employees starting their careers.

Rotation 1: System Security

- Worked with the Information Assurance team to support the quarterly system scans
- Assisted the Anti-Tamper team to design system security architecture

Rotation 2: Software

- Planned automation of the sensor operator position with software that would manipulate an existing GUI. The program had funding terminated in the early stages.
- Worked on a middleware software that would translate and send messages between two pieces of hardware.

Rotation 3: Product Line Modeling

- Worked with Atego Artisan Studio to create models of existing firmware.

Technologies:
c++ | java | eclipse

Flight Systems Engineer Intern **Summer 2013/14**

Lockheed Martin | Greenbelt, MD

Worked on several software projects supporting the Hubble Space Telescope

Fine Guidance Sensor Simulator Code Update

- A problem was discovered with the Fine Guidance Sensors on Hubble Space Telescope and needed to be investigated.
- Worked with engineers to develop an accurate model of the issue.
- Modified simulator FORTRAN code to use the model. Verified accuracy of model by running scenarios from past missions.
- The model was used to predict the effects of the issue out to 2025

FGS-2R2 Coarse Track Nutation Convergence Study

- Performed a study to determine functionality of one of the Fine Guidance Sensors on the Hubble Space Telescope that was causing issues when locating stars.
- Presented findings at the end of the first internship.

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Technologies:
Java | FORTRAN