

# DAVID BORNCAMP

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[www.borncamp.net](http://www.borncamp.net)

## Work Experience

### **Decipher Technology Studios**

**November 2017 – Present**

#### • **Software Engineer**

- As a member of the Core Services team maintain and deploy various services written in Golang, Scala, Java, NodeJS, and Python 2.7 and Python 3.6+.
- Write a service to perform visualizations of auditing from Grey Matter Sidecar by writing asynchronous Python code to interface with Kafka and ElasticSearch.
- Design and produce several back-end microservices to preform Named Entity Recognition and Natural Language Processing using Java, Scala, and Python 3.6+. This includes writing a RESTful webserver and implementing Machine Learning techniques to have the service learn and update language models. Write testing and analysis programs using Python, Bash, Jenkins and Circle CI.
- Design, prototype, and produce back-end microservice to preform person image recognition and tracking in images taken by Raspberry Pi images using Golang and bindings to leverage OpenCV.
- Design and maintain Golang service to enforce document access control by using a RESTful interface.

### **Space Telescope Science Institute**

**September 2013 – November 2017**

#### • **Sr. Research & Instrument Analyst**

- Create, develop, implement, and maintain pipelines written in Python and IDL and author scripts to enhance calibrations for the Hubble Space Telescope (HST) Advanced Camera for Surveys (ACS) as a member of the HST ACS scientific instrument team. Write and contribute to published and peer reviewed papers, present results and write proceedings for conferences worldwide. Mentor junior staff and review their work.
- Perform multiple duties relating to team organization within the Institute such as facilitate meetings, serve as intermediary between the Instruments division and Engineering division.
- Maintain my own science program focused on Kuiper Belt Objects by writing grants, publishing papers, and presenting at conferences world wide.

### **Southwest Research Institute**

**August 2010 – September 2013**

#### • **Research Assistant**

- Working with Marc Buie, PhD with photometry and spectroscopy of Pluto and with a Kuiper Belt Object search by writing programs in IDL to query a MySQL database to analyze thousands of images to ascertain photometry and astrometry for Pluto and new KBO's for both characterization and orbit determination. By doing this we discovered 36 KBO's that have been submitted to the MPC and work presented in peer reviewed papers and at professional conferences.
- Working with Leslie Young, PhD and Cathy Olkin, PhD obtain high precision astrometry, data reduction, planning, observations and data collection for Pluto occultation events occurring in 2013 by writing IDL programs to reduce data and perform orbit determination.

## Education

### **Master of Science - Computer Science; December 2016**

Towson University

Thesis - Title: *Pixel History for Advanced Camera for Surveys Wide Field Channel*

An analysis of thousands of images taken by HST to improve calibration methodologies by creating a new data structure to very quickly analyze the entire history of an individual pixel over the lifetime of an instrument. This has since been expanded to multiple instruments covering many wavelengths.

### **Bachelor of Arts - Astronomy; May 2011**

University of Colorado at Boulder

### **Computer Programming, and Geographical Information Systems; Presidents list; December 2013**

Front Range Community Collage

## **General Information/Skills**

- DOD security clearance – information available upon request.
- Programming languages: Python 2.7 & 3.6+, IDL, JavaScript, Java, Golang, Scala, SQL, and C/C++ in a Linux environment as well as proficiency in Git version control, Kafka and Zookeeper interfaces with multiple languages.
- Microsoft Office products including Word, Excel (VBA), and Power Point in a Windows environment.
- Perform observational astronomical studies at large, professional observatories (including Hubble Space Telescope Magellan Subaru, and others), reduce observations to produce and publish scientific results.
- Wilderness First Responder.

## **Recent Technical Projects**

- Develop full stack for personal website [www.borncamp.net](http://www.borncamp.net) using JavaScript (NodeJs) deployed on Amazon Web Services (code is available on [GitHub](#)).
- Design and implement new project that directly increases the overall efficiency of HST by analyzing the individual variability of each pixel in the 16 Megapixel detector over its 16-year lifetime of the instrument which that saves 98% of hot pixels (see publishing: [ACS ISR 2017-05](#)).
- Develop a Python program to detect satellite trails in an image that has a 95.5% completeness rate and a 1.63% false positive rate (see publishing: [ACS ISR 2016-01](#) and [10.1017/S1743921316012631](#)).
- Create pipeline and scripts that compute and correct for the geometric distortion of the ACS Wide Field Channel (see publishing's: [ACS TIR 2014-02](#), [ACS ISR 2015-02](#), and [ACS ISR 2015-06](#)).
- Design, develop, and maintain a new fully automated pipeline for the creation of monthly generated reference files and data downloads.