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1 Computer Science

1.1 CS Education

1.1.1 University of Maryland
College Park, MD

Winter 2010 - Present

Non-degree coursework:

- Algorithms
- Organization of Programming Languages
- Computer Organization

GPA: 3.67

Fall 2008 - Winter 2009

1.1.2 University of California - San Diego
La Jolla, CA

Non-degree coursework:

- Basic Data Structures and Object-Oriented Design
- Introduction to Computer Science & Object-Oriented Programming in Java

GPA: 4.00

1.2 CS Experience

1.2.1 Undergraduate Researcher
Programming Languages at University of Maryland
College Park, MD

June 2011 - Present

Topic Studied:

- Static Typing for Ruby on Rails

Accomplishments:

- Coded implementations for load-time checking of suitability for some Rails API calls (e.g. to check that the proper database columns exist on calls to has_and_belongs_to_many).
- Analyzed the complete Rails associations API for similar helpful potential checking.
- Proposed a method for incorporation of these checks into the group's Rubydust utility for static typing of Ruby.

1.2.2 Software Engineer
General Dynamics Information Technology, NOAA Activities
Greenbelt, MD

January 2010 - Present

Current Responsibilities:

- Co-design a system to receive, ingest, and catalog metadata for, and store for thirty-four days nearly four terabytes of satellite data per day from various sources (mostly via FTP) formatted in Hierarchical Data Format 5. A subset of this data must be pushed in near-real time to two external locations via FTP and remain accessible for re-push for the life of the mission ($\sim$ two decades). All data still on the system must be quickly accessible for investigators in various locations, secure shelled in or not.
- Code a significant portion of the above-mentioned system.
- Work independently to evaluate and implement fixes/enhancements for system software issues raised by the customer (NASA Joint Polar Satellite System Program) or the above-mentioned investigators.
- Communicate progress to customers via weblog and more formal documentation.
- Train new developers on the layout and use of the system.

Accomplishments:

- Coded the majority of a system to produce proxy satellite data (as from sensors to be launched) from similar real data from sensors already in operation in near-real time (< six hours behind observation time). This system has been stable with hundereds of users for a year.
- Designed and coded alterations to the database and other low-level infrastructure as needed by bug fixes and enhancements to the proxy generation scripts.
- Drafted a version control policy for the group (using Subversion).

1.2.3 Program Analyst
DrFirst.com
Rockville, MD

May 2009 - January 2010

Accomplishments:

- Migrated the company's source code from Microsoft Visual Source Safe to the open source SubVersion versioning system.
- Wrote scripts to automatically get, build, and create deployment file structures for eight different projects - signicantly reduced the amount of engineer time on frequent builds (using Apache Ant).
- Led the quality assurance for three of ten major company projects - oversaw and/or performed new functionality and regression testing; testing automation; and coordination of cooperative testing with external parties.
- Assisted in coding bug fixes, enhancements, and new functionality for one of ten major company projects (implemented in Java).

2 General Engineering

2.1 Engineering Education

2.1.1 Cornell University
Ithaca, NY

Fall 2002 - Spring 2006

Bachelor of Science Engineering Physics
GPA: 3.49

2.1.2 University of California - San Diego
La Jolla, CA

Fall 2006 - Spring 2007

Master of Science Materials Science & Engineering
GPA: 3.74

2.2 Engineering Experience

2.2.1 Graduate Researcher
Ivan Schuller's Nanoscience Group, UCSD Department of Physics
La Jolla, CA

Summer 2006 - Fall 2008

Topics Studied:

- Metal-insulator transition in vanadium sesquioxide.
- Magnetoresistance of FNF trilayers containing vanadium dioxide.

Responsibilities:

- Supervised operation and maintenance of a plasma sputtering thin film deposition system.
- Supervised operation and maintenance of an X-ray diffraction system.

Accomplishments:

- Designed and implemented gas ow control system via EIA-485 interface (using LabVIEW) - operational and used daily for over a year.