Eric Meyer
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Bachelor of Science, Electrical Engineering, Colorado State University

Summary

An electrical engineer with an emphasis in coding, building high quality, high performance products in software, hardware or both! Design, development and testing of firmware & software at the computer componentry and system level.

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Skills

Advanced

- Python: multi-threaded, multi-process, unit testing, de/serialization
- C
- git, gitflow, source code management
- software release & distribution
  - pip/python
  - RPM
  - OCI (Open Container Initiative, docker/podman) images
- Trusted Computing Group (TCG) security sub-systems
- Failure analysis
- Software & Hardware testing. Testing principles and theory
- SATA, SAS / SCSI & NVMe data storage device protocols
- Debug with Arbitrary Record Format (DWARF)
- oscilloscopes

Intermediate

- C++
- bash
- Small team leadership and code development mentoring
- Kubernetes
- build pipelines such as Jenkins and CircleCI
- Design patterns
- Linux system administration
- Linux & Windows application development
- Protocol analyzers

Experience

Growbies

Personal Project **(November 2024 - Present)**

Development of cost-effective distributed sensors for use in containerized gardening scenarios, such as in green houses and homes. The sensors serve as feedback to a machine learning based control for automated watering.

See: https://github.com/highvelcty/growbies

Hewlett Packard Enterprise (HPE)

Software Developer - Determined AI **(April 2024 - November 2024)**

Development of the Determined AI product (www.determined.ai). In particular, development of:

- A cloud based Retrieval Augmented Generation (RAG) development & deployment environment.
- Scalability testing. (See https://github.com/determined-ai/determined/tree/main/performance/daist).
- Demonstration of emerging technologies.

Software Developer - Call Home Platform **(2020 - April 2024)**

Developed a call home system by which pertinent data is collected from systems in the field, securely returning the data for internal analysis. The result was increased product quality and customer service. Details of implementation:

- Python based scheduler with python based plugin architecture.
- Multiprocessing / multithreaded
- Standard output, standard error & file collection provided.
- Established a branch/fork with shared common based development model.
- Release & distribution via Jenkins build pipelines.
  - RPM, OCI (docker/podman), tarfile, source distribution formats targeting installation into a portfolio of HPE products.

Other notes:

- Involved in design, implementation and testing of a continuous testing framework for HPE products.
- Helped transition to source based documentation.
- Invented a thread/process safe low overhead virtual file system partitioning for python.
- Invented an open source, zero copy serialization/deserialization technique for python, see: https://github.com/determined-ai/determined/blob/main/performance/daist/daist/models/base.py

Seagate Technology

Test Engineer **(2015 - 2020)**

- Python based test tools for NVMe solid state drive development and testing.
- Leader / Mentor for 1-4 fellow test software developers.
- Development of tests and test execution targeting an in house C-like scripting environment.
- Specialization in NVMe and RS232 protocols.
- Development of python based parallel and networked serial port software for Windows and Linux.
- Worked with developers in Pune, India by traveling there and via remote collaboration.
- Introductory experience with PCIe signal integrity testing per the PCI-SIG compliance program.

Firmware Developer **(2012 - 2015)**

- Hard drive firmware development with emphasis in diagnostics and logging.
- C++ based serial port software for accessing hard drive diagnostics and the security sub-system. An embedded python interpreter was implemented for scripting support. Deployed as a single file executable for ease of installation and sharing across the company. For use with Windows.
- Co-invented closed-loop feedback system for disc drive firmware data types. Debug With Arbitrary Record Format (DWARF) output from the ARM compiler was used to generate python representations of various data types such as structures, unions, typedefs, constants and enumerations. The python representation of these data types then fed into python based development and testing tools for drive analysis.
- Implemented access paths to low level internal disc drive data via diagnostics, enabling development of cutting edge tools and tests.

Failure Analyst **(2008 - 2012)**

- Analyzed disc drive failures from customer joint qualifications and internal reliability testing.
- Provided accurate, succinct and timely failure reports to product core teams.
- Gathered and analyzed data surrounding failures, including test logs, drive logs, manufacturing history, etc.
- Ran suites of tests to gather more information on failure modes.
- Created ad hoc contexts and tests to help isolate and recreate failures.
- Traveled to Thailand twice for a total of 9 weeks and to China once for 4 weeks to swap information between the sites.
- Notable failure analysis experiences:
  - Helped discover, isolate and characterize a standing wave phenomenon on the hard drive disc that occurred only at very specific temperatures. This wave caused erratic head flight. The problem was resolved.
  - Developed tests and collected data to demonstrate hard drive head life expectancy when used with contact start/stop technology. Contact start/stop is a design in which the heads rest on the discs when not in use. This work helped usher in the era of ramp load, where the heads would rest on ramps instead of on the disks.
  - Development of an automated test to perform a failure analysis technique that helps expose subtle media defects.

Mountain Secure Systems

Electrical Engineer **(2006 - 2008)**

- Development of data storage devices for rugged applications, in particular, high altitude applications.
- Wide range of responsibilities included:
  - Circuit design, layout and testing
  - Failure analysis
  - Vibration and temperature testing
  - Manufacturing process improvements

Red Cone Research

Assistant **(2000 - 2002)**

Assisted a physicist with a government contract to develop a high speed laser interferometer. The purpose of this tool was to measure thousands of parts to sub-micron levels. The parts being measured were used in the Stanford Linear Accelerator. Responsibilities included machining parts, building circuits by hand and other miscellaneous lab assistant tasks.