$ whoami
# Kevin_Mittman

github – @kmittman, @mittman, @oshazard, @justbrowsing

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EXPERIENCE

NVIDIA Corporation – *https://developer.nvidia.com/cuda-downloads* Jan 2017 – present

Senior DevOps Engineer III *2021 – present*

· Designed distro-specific packaging of *NVIDIA Open GPU Kernel Modules* for RHEL (kmod-nvidia-open-dkms), Ubuntu (nvidia-kernel-open), Fedora (nvidia-driver:515-open), SUSE (nvidia-open-gfxG05), and Debian (nvidia-kernel-open-dkms).
· Implemented a toggle in the ncurses CUDA runfile using C++ *#include* guards to opt into new *-m=kernel-open* module flavor.
· Shepherded GPG key rotation efforts, re-signing 1TB of shipped artifacts, enabling HSM pipelines, cuda-keyring package, ephemeral keys for reduced surface area with local repo installers, and customer interaction for migration to the new pubkey.
· Principal engineer for redistributable "binary archives" initiative, delivering tarball and zip archives accompanied with JSON manifests per release indicating LICENSE, checksums, etc. for use with 3rd party CI/CD build systems and packaging.
· Embarked on CUDA-X installer refresh for cuDNN, cuTENSOR, NCCL, and TensorRT products to improve user experience.
· Lead a team of engineers, building a continuous integration and inventory system to improve validation for packaging infrastructure, providing 1-on-1 mentoring, outlining vision and requirements, and overseeing Jira sprint progress.

Senior Systems Software Engineer III *2020 – 2021*

· Spearheaded GitHub open source package template initiative, rebuilding over a dozen internal repositories with interleaved git history, using mailbox patches to redact sensitive commit messages and correspondence with community contributors.
· Coordinated with stakeholders across timezones to ship several new products on tight deadlines, developing custom installer solutions, and ensuring best practices followed using semantic versioning and identifying package dependencies.
· Garnered a reputation for distilling complex software ecosystems into easy to understand presentations and visual analysis.
· Pilot in charge (PIC) for precompiled driver kernel module packaging solution, co-developed with Red Hat engineers to improve GPU cloud server instances, providing hardening and UEFI secure boot support. Baked in branch switching using modularity streams to support user choice to lock updates to a specific branch, stay up-to-date with branch and kernel, or fallback to DKMS. End-to-end automated pipeline, delivering prebuilt bits for each kernel-driver combination, with 24h SLA.
· Envisioned Project Triforce, an OverLayFS based state machine for managing repository metadata as atomic transactions. Significant quantitative benefits for CPU, disk, and network resources using a three-pronged approach & incremental snapshots.
· Calendar-based, ShipIt Scheduler, provides program management a centralized dashboard to plan automated deployments with product specific approval and Slack progress notifications. A train model prevents metadata collisions and CDN overhead.

Systems Software Engineer II *2018 – 2020*

· Built ShipIt, an in-house SaaS (Software as a Service) full-stack webUI for managing product releases using a combination NodeJS and Perl backend. Turn-key ease of use to provide management, a reliable data-driven interface populated by JSON.
· Shaped KitMaker, a containerized approach to CI/CD, supporting many products and architectures, by converting monolithic builds into componentized fragments using Artifactory, Vault, and Jenkins to produce customizable and reproducible pipelines.
· Coordinated closely with QA engineers to provide heads-up on upcoming changes, technical consultations and tooling.
· Documented detailed end-to-end pipeline process from source code check-in to release candidate using visuals and diagrams. Frequently demonstrated know-how to present technical specifications to a varied audience by keeping it light and to the point.
· Cross-team maintainer for the NVIDIA Machine Learning repository, handling the logistics of interlaced product releases.

Systems Software Engineer I *2017 – 2018*

· Designed AUTOPKG, a fully automated continuous deployment pipeline for packaging of the CUDA SDK for the plethora of supported distributions, platforms and installation formats. Layered architecture design contributed increased release cadence.
· Deployed a transparent squid proxy to rewrite public URLs for seamless cross-platform internal testing with one-line. Mechanism has saved time and provided assurance that network installers are bit-identical during testing and for public release.
· Maintainer for CUDA and driver installation packages using Perforce and git for Fedora, RHEL/CentOS, SUSE, Ubuntu, Linux4Tegra (L4T), Windows and MacOS. Strong expertise with rpmbuild and .SPEC files, debuild and control/rules files.

apacman – *https://github.com/oshazard/apacman* downloads 20,000 Sep 2013 – Nov 2016

Lead Maintainer of Community Project

· Took over reins of popular BASH-based, package manager for ArchLinux User Repository (AUR) PKGBUILD templates
· Created a configuration file, many new features, command-line (CLI) flags, added Bats unit tests and wrote manpage docs

JustBrowsing Linux – *https://justbrowsinglinux.com* downloads 127,000 Feb 2013 – Feb 2015

Founder and Project Manager

· Developed ChromeOS-like kiosk Linux LiveCD distribution for web browsing with lock screen webcam intrusion detection.
· All-in-one settings control panel with persistent config file; wrote calculator, timers webapps and pyGTK keyboard applet.

TECHNICAL SKILLS

18+ years of GNU/Linux experience
· Source packaging, Makefiles, porting and maintenance

Command-line and scripting proficiency
· awk/grep/sed, busybox, chroot, ssh, apt-get, dnf/yum, vault

Writing Documentation
· manpages, draw.io, dot, UML, LaTeX, markdown, Confluence

Development Tools
· Android Studio, Bats, Eclipse, git, gcc, p4, meld, Scratchbox

Programming Languages
· bash, Perl, JavaScript, Python, Groovy, Java, R, C++, Racket

Full-stack Web: Back-end and Front-end
· NodeJS, Socket.io, CSS/HTML, Bootstrap, jQuery, XML

Database and Graphics
· MySQL, SQLite, JSON, YAML, Artifactory, ImageMagick

Containers, Virtualization, and Deployment
· docker/podman, nspawn, QEMU, VirtualBox, virsh, Jenkins

PROJECTS

CUDA repo management – *Lead Developer* 2018 - present
· Managing Debian and RPM repositories with many packages.
· Scripts append-only, OverlayFS, mirroring, metadata validation
https://github.com/NVIDIA/cuda-repo-management

NVIDIA driver templates – *Maintainer* 2017 - present
· Maintainer for six sets of distro-specific driver templates.
· Collaboration with open-source packaging community
https://github.com/topics/nvidia-driver-packages

RHEL precompiled – *Co-Developer* 2018 - 2020
· Lead NVIDIA engineer in collaboration with Red Hat engineer
· Precompiled kernel module (kmod) packages: driver @ kernel
· Plugins for dnf and yum package managers for .ko files

NVIDIA ShipIt – *Lead Developer* 2017 - present
· Turn-key full-stack webUI for managing product releases
· JSON data-driven interface populated via Artifactory AQL
· Global terminal using socket.io, Node.js, and Perl back-end

GuessWhat – *Core Developer* Spring 2016
· Online Pictionary game with real-time multiplayer and chat
· Node.js and JSON API to fetch words, stored in Redis DB

pyCheckmate – *Developer* Fall 2015
· Python chess end-game AI, 5-ply minimax α–β pruning
· Wrote user interaction and QA test prep for tournament

TimeMe – *Lead Developer* Spring 2012
· Task tracking application written in Java SWT
· Developed with Eclipse IDE, git, SRS and UML diagrams
· Data saved to CSV text-file for import into Excel or charts

PrinterPi – *Project Manager* Q3 2012
· Fulfilled client request for iPhone printing to USB printer
· Raspberry Pi as CUPS bridge and hostapd WiFi hotspot
· QEMU user mode to run x86 binary drivers on ARM SoC

webGPS – *Developer* Mid 2011
· Parse GPS coordinates from Palm webOS phone via USB
· Client-server model with PHP shim to interface with gpsd
· Mapped wireless Access Points combined with kismet logs

Maemo – *Community Member* Mid 2009
· Developed shell scripts for Debian-based Nokia N810 tablet
· Ported software using Scratchbox cross-compile environment
· Submitted Debian packages to the Maemo Extras repository

EDUCATION & COURSEWORK

Advanced Software Systems Graduate Program
· Stanford University — March 2021 – present
· Advanced Topics in Operating Systems · Mining Massive Data Sets

Bachelor of Science in Computer Science
· California State University, Fullerton — Graduated May 2016
· Data Structures · Software Engineering · Open Source Software · Algorithms · Network Security · Web App Design

LEADERSHIP & PRESENTATIONS

Triforce Repository Management 2021
· Presented at the first annual PackagingCon

Precompiled Kernel Modules & Modularity 2020
· Presented at GPU Technology Conference (GTC) in the Fall

Simplifying NVIDIA Driver Deployments 2020
· Presented at Red Hat Summit conference

Linux User Group – *Founder, President* 2014 – 2016
· Organized events and workshops for CSUF students

CERTIFICATIONS & REPUTATION

Updating the CUDA Linux GPG Repository Key 2022
· Announcement of signing key rotation for 25 repos containing NVIDIA compute software and instructions to migrate pubkey

Blog: Streamlining NVIDIA Driver Deployment 2020
· Developer blog post for pre-compiled kmod packages on RHEL 8.x and modular NVIDIA driver branch stream / profile

Jetson Robotics Lab 2018
· Volunteer lab assistant at GTC providing support for image recognition, machine learning robotics and CUDA deep learning.

Accelerated Computing with CUDA C/C++ 2017
· Completed fundamentals course covering DIGITS

Applied CS with Android by Google 2016
· Certified in 5-day hands-on technical workshop

StackOverflow 

2013
· *https://superuser.com/users/243553*

Certificate of Achievement in CIS 2013

Certificate of Specialization in C++ 2013