

Peter C. Miller

Senior Software Engineer & 3d Animation CI/CD Python Specialist

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PROFESSIONAL SUMMARY

Senior Software Engineer with decades of experience, most in the VFX industry. Highly collaborative and interested in the reliability and efficiency of complex frameworks, especially for 3d pipelines and CI/CD systems. Solver of complex software problems in the Linux environment. 9 years in DevOps, Rest API development, verification, and enhancement. Current research interest: Applying latest arbitrary precision libraries to optimize 3d deformation memory consumption for enhanced production artist and consumer experiences in Maya and Unreal Engine.

RELEVANT EXPERTISE / SKILLS:

Python - 15+ years	Image generation pipelines	Maya & 3d Generalist
Custom Build & Release Frameworks	DevOps/CI/CD/Agile	Full Stack Engineering
Cloud Service Applications	Linux / Shell Scripting	Testing / Automation Frameworks
Scale Testing	Rest Services	Software Debug and Solution Creator

WORK EXPERIENCE

Senior Software Engineer, Configuration Management, Production Software / R&D

DreamWorks Animation, NBCUniversal, Comcast • Glendale, CA

Jul 2002 – Dec 2023

2018 - Senior Software Engineer
2013 - Release Engineer
2010 - Software Engineer
2005 - Software Engineer in Test
2002 - Quality Assurance Specialist

- **Authored a comprehensive Python/pytest verification suite** for DreamWorks' custom B2B global file transfer REST service.
- **Built open source [GStreamer](#) stack** to support essential animator reference capture workflows during python-3 migration.
- **Migrated legacy "Percs" proprietary file versioning & management system's verification suite** as product switched from Oracle to PostgreSQL, saving millions of dollars in operational costs.
- **Maintained and enhanced "Silo" Linux workstation Python-based service** supporting web browser-based desktop application launching and management.
- **Supported DevOps CI/CD with product teams from 1 to 35 developers**, as well as production technical directors and artists. I found solutions to software conflicts and provided working software combinations for Linux, [Rez](#), [Electric Flow](#), Github, [SCons](#), gcc/icc, 500+ proprietary DreamWorks packages and their integration with 5000+ open source solutions. In addition, I routinely created, adjusted, and maintained intricate Python scripts within the Cloudbees Electric Flow DevOps product to ensure reliable, customized, and consistent CI/CD releases.
- **Migrated SoapUI-based endpoint verification tests to Python** pytest framework for faster execution time, reduced costs, and easier maintenance of high profile internal microservices.
- **Wrote custom scale stress frameworks** based on Python Locust to replay captured production high-volume request sequences on offline mirrored service stacks. This enabled development teams to diagnose issues on live services and optimize configurations for best throughput and response times for studio critical file access Rest service endpoints.
- **Initiated and developed a GUI-based automation infrastructure** based on Robotic Process Automation to simulate production artist loads on backend services at scale. This [SikuliX](#)-based framework used [HPRG/ZCRB Remote Desktop](#) app

for each account session, with targeted systems on a dedicated “HP ZCentral” rack within the DreamWorks datacenter. This decoupled scale verification of proprietary animation apps from interference with production.

- **Improved studio software build consistency and runtime stability** by re-compiling proprietary applications and components such as plugins for [Nuke](#). This project targeted developer-centric statically linked binaries to be re-configured as dynamically linked to make DreamWorks' release and runtime standards consistent across all products.
- **Implemented ~20 upgrades and fixes to “Tiber”**, DreamWorks' shot level layout tool. Code changes were mainly in QT-based GUI widgets within Maya.
- **Implemented a working demonstration of a Docker based release system** for DreamWorks proprietary animation app “Premo”. The project was a collaborative exploration with an external vendor.
- **Participated in R&D “Lab Weeks”**, where team members were encouraged to dive into industry related technical problems and explore possible solutions, and then share the findings with the department. My presentations included “Automated extraction of complete software sets into Docker images as driven by runtime dependencies”, “Render Farm optimization through Visualization”, “Finding [Moonray](#) raytracing artifacts with transparent Menger Sponges”, “Single precision float limitations on Production: Is it finally time for arbitrary precision?”
- **Created, maintained, and documented a customized software conversion and Release Engineering suite**. This toolset significantly modified legacy DreamWorks software for release to Oriental DreamWorks in Shanghai as a third party product. The extraction process required unique engineering with dynamically responsive parsing of binary files to support arbitrary top-level target selection from thousands of internal DreamWorks packages. The toolset scanned for all compiled application and library dependencies of a target and reconfigured them from the internal DreamWorks runtime standard to the external VFX “Rez” runtime standard. The final package contained as many Rez “variants” as possible from the original DreamWorks product. For example, a package of “fx_maya_plugins” would have Rez variants to run with different and binary-compatible versions of Maya, boost, python, log4cplus, etc. This allowed DreamWorks Animation to meet its contractual obligations to Oriental DreamWorks and enabled Oriental DreamWorks meet the 40% creation requirements for the Chinese distribution of Kung Fu Panda 3. Received a Technical Achievement Award from the R&D department for this innovation in July 2016.
- **Created 'Large Application Socket Portal' (LASP) execution framework** for driving artist workflows reliably through arbitrary third-party application GUIs such as Maya, Nuke, Houdini, Unreal Engine. I made this unique framework over 12 years ago and DreamWorks Animation still uses LASP to detect problems in advance of software releases.
- **Independently developed a datacenter server visualization tool for throughput optimization; 'Cloudbreak'**. Initially the result of a 6-week sabbatical granted in 2008, this Maya toolset created an interactive real time rendered 3d representation of an arbitrary subset of servers in the data center, allowing the viewer to “see” each server and its consumption of RAM, swap, CPU count, and process load consumption over time. Dedicated server racks and the pattern of their utilization could be visually monitored. Render farm wranglers could click on active processes to determine associated artists, jobs, and departments. Realtime display and interactive time scrubbing allowed easy detection of impending anomalies, say if one job was unexpectedly consuming all RAM to the detriment of other jobs. Also, Cloudbreak's focus on the primary resource limitations of specific sets of servers allowed users to routinely find basic configuration problems that were overlooked by traditional monitoring systems.
- **Ran Software Quality Assurance pre-release testing** of core proprietary and third-party animation tools and authored automated unit and functional test suites.
- **Isolated difficult-to-reproduce problems** and wrapped them up in solidly defined workflows and problem definitions to enable resolution from R&D.
- **Facilitated solutions** with internal development as well as third party vendors Autodesk (Formerly Alias|wavefront), Nvidia, HP and Red Hat.

Over 21 years at DreamWorks Animation, I worked on much more than detailed here. Complete list available upon request.

Co-Founder and Software Architect

Animated Codes Made Easy LLC; "ACME.CODES" • Glendale, CA

Jan 2014 – Present

- **Full Stack Engineer** and architect of a near real-time service for generation of animations of arbitrary QR codes as created with the software and standards of the 3d CGI VFX industry. This service is a fully automated VFX pipeline tailored to implement the complete set of industry phases - modeling, texturing, rigging, animating, lighting, rendering (Primarily GPU based), compositing, and encoding/ripping to provide high quality mp4 animated movies of any QR code. Primary software used is Maya and Python, and currently adding an Unreal Engine-based parallel pipeline.
- **Service representative of all customer relationships** for retail and subscription use of ACME service.



Website: <https://acme.codes>

API: <https://api.acme.codes>

Quality Assurance Product Specialist, Maya

Autodesk (Formerly SGI-owned Alias|wavefront) • Santa Barbara, CA

Jan 1997 – Jan 2002

- Tested Maya versions 1.0 - 5.0, and Linux and OSX ports for comprehensive functionality.
- Wrote, executed, and maintained test plans and automation scripts for Maya.

Commercial Glider Pilot (Part Time)

Windhaven Glider Rides • Santa Ynez, CA

Jan 1997 – Jan 2003

3d Modeler and Animator

[Pure Mirage Imaging & Animation](#) • Santa Barbara, CA

Jan 1996 – Jan 1997

- Contract game content for Shattered Light; Modeled and animated background tiling for 2.5D multiplayer games

Instructor

Dean Collins Knowledge Network • San Diego, CA

Oct 1995 – Dec 1995

Faculty

Brooks Institute of Photography • Santa Barbara, CA

Jan 1993 – Jan 1995

- Taught primary Digital Imaging and Electronic Pre-press undergraduate courses.

Programmer (Assembly Language)

APOLLO Reservation System, COVIA, United Airlines • Denver, CO

Jan 1989 – Jan 1991

- Re-factored core inventory 'cancel seat' logic in United Airlines' Transaction Processing Facility as part of a code base overhaul of legacy assembly code to Object-Oriented standards for execution on IBM 370 mainframes; completed modules average execution rate serving global requests was over 120/second on release - high for its time.

EDUCATION

M.S. Photography, Digital Imaging / Brooks Institute of Photography Santa Barbara, CA	1996
B.S. Information Systems / University of Colorado Boulder, CO	1989
Paraglider P2 Rating / USHGA – Rob Sporrer Instructor Santa Barbara, CA	2001
Glider/Sailplane Pilot, Commercial Rating / CFI-G Geoffrey Larkin Santa Ynez, CA	1997
30 day Outdoor Leadership Expeditions / National Outdoor Leadership School Lander, Wind River Wilderness, WY and Cascade Wilderness, WA	1984, 1985

FILM CREDITS

Kung Fu Panda 4 (TBR Mar 2024)	Kung Fu Panda 3	Monsters vs. Aliens
Trolls Band Together	Home	Madagascar 2
Ruby Gillman, Teenage Kraken	Penguins of Madagascar	Kung Fu Panda
Puss in Boots: The Last Wish	How to Train Your Dragon 2	Bee Movie
The Bad Guys	Mr. Peabody & Sherman	Shrek The Third
The Boss Baby: Family Business	Turbo	Flushed Away
The Croods: A New Age	The Croods	Over the Hedge
Trolls World Tour	Rise of the Guardians	First Flight (Modeler)
Abominable	Madagascar 3	Madagascar
How To Train Your Dragon: The Hidden World	Puss in Boots	Kelso Loco (Director, Effects Artist)
Captain Underpants	Kung Fu Panda 2	Shark Tale
The Boss Baby	Megamind	Shrek 2 (DVD)
Trolls	Shrek Forever After	Sinbad: Legend of the Seven Seas
	How To Train Your Dragon	

PATENTS

Animation of customer-provided codes

[US 10083535B2](#) · Issued Sep 25, 2018

Other Inventors: Will Bilton

VFX TOOLS AND PROGRAMMING SKILLS

Python
Maya
Unreal Engine
Linux/tsch/bash
make/Cmake/gcc/SCons
Rez
Cloudbees Electric Flow
Python pytest
Python CherryPy
HTML/CSS/Javascript/JSON/XML

git/Github (+admin)
PyCharm
VSCode
Restful API Design
Jira/Confluence
Postman
MongoDB / PostgreSQL
Microsoft Azure Cloud
Gimp
Adobe Photoshop

Nuke
Houdini
Bamboo
Python Locust
Python requests
Python PIL
Accurev (+admin)
SoapUI
SikuliX
Limited: C/C++, Assembly

WORKPLACE SKILLS

Technical Leadership
Inter-Department Collaboration
Team Building / Enthusiasm / Morale

Personnel Development
Software Design Tradeoff Analysis
Work Ethic / Consistency

Teaching / Group Training
Automated Systems
Comprehensive Solutions

Personal Software Projects: [Menger Sponges](#), [Kelso Train Animation](#), [optimized large object count renderings](#), [scripted modeling methods](#)

Personal Interests: Hiking, 4WD remote camping, Flying, Home Engineering, Music, Chasing Full Solar Eclipses.

Thank you for your time.