ERIC REINECKE

SR. SOFTWARE ENGINEER

PROFILE

Skilled software engineer and self-motivated learner with diverse work experience.

I've focused on film production technology and have done a range of work that spans from back end render farm tasks, to end-user facing applications targeted at all levels of the film-making process.

TECHNICAL SKILLS

- **Languages:** Python, Swift, Objective-C, C, C++, Shell Scripting
- **Backend:** RESTful API design, flask, JSON, SQL, Mongo, XML, YML, SumoLogic, RabbitMQ, Docker, Boto3, pytest
- **AWS:** Lambda, ECS, DynamoDB, RDS, S3
- **Media:** FFmpeg, OpenTimelineIO, QuickTime/mp4, Shaka Packager, Alembic, OpenEXR, Maya, RV, Zeno, Various NLEs
- **Frontend:** AppKit, UIKit, PyQt
- **Development/project management software**: Xcode, VIM, Git, Jira, Confluence, Jenkins, Perforce
- Comfortable working on Mac OS X, Linux, and Windows

EXPERIENCE

NETFLIX — OCT 2018-PRESENT

SR. SOFTWARE ENGINEER, VIDEO ENGINEERING

Domain expert on film post production technology and non-linear editing pipeline. Building microservices to harvest information from editorial files and render timelines.

Key Contributions

- Took ownership of a prototype video renderer for cutting and compositing and worked with the customer to productize for artist use
- Built and maintain a Python/Flask microservice to analyze a film cut and identify the material used
- Prototyped and evangelized a scheme using OpenTimelineIO to interchange camera lens metadata to the broader industry (https://github.com/reinecke/otio-cookelensmetadata)
- Act as a Technical Steering Committee member for the OpenTimelineIO project
- Provide consulting throughout Netflix for editorial workflow and users of OpenTimelineIO

PIX | SYSTEM — JUN 2017-SEPT 2018

SR. SOFTWARE ENGINEER, MEDIA AND PIPELINE

Core contributor to engineering and company process with a focus on client workflows and Media Pipelines.

Key Contributions

- Worked on small team that lead transition to microservice architecture in Amazon AWS
- Built video processing pipeline using FFmpeg on cloud infrastructure to transcode media for secure streaming in constant time regardless of video duration
- Implemented streaming manifest generation for both HLS and DASH
- Built service for executing complex task trees (render farm-like) in the cloud using Python, Flask, and SQLAlchemy
- Built system for ingestion of terabytes of assets from set location into cloud system
- Architected system for processing originals from set for Post-Production online
- Wrote Python library for inspecting and manipulating MP4 (ISO BMFF) structure on the binary level
- Wrote Python library for frame-accurate inspection of media characteristics using ffprobe for underlying media inspection
- Wrote Python library providing a high-level abstraction for media transcode and containerization using FFmpeg

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PIX | SYSTEM MAY 2013-JUN 2017

APPS TEAM SOFTWARE DEVELOPER

Develop end-user applications for iOS and Mac OS X connecting film industry professionals around the globe. Recommend strategic vision for future technology. Serve as team specialist in media technology.

Key Contributions

- Contributed in team environment to frameworks shared by apps on both iOS and OS X
- Used FFMPEG C APIs, OpenGL, and CoreAudio to build prototype video player running in iOS, OS X, and as an NPAPI plugin for Safari
- Contributed to iOS app (https://itunes.apple.com/us/app/pix-system/id438296952) re-build for(2.0 release and later led iOS app team through several releases (about one year)
- Built solution for securing storing DRM protected media for offline viewing on iOS and worked through security auditing process
- Used LLDB's Python API to create custom debugger commands tailored to internal data structures
- Worked with account management staff to develop Objective-C and Python app for streamlined upload of data into the PIX System
- Factored code into shared libraries to maximize utility across entire suite of iOS and Mac apps
- Participated in code reviews for Python, Objective-C, and Swift developers to ensure code quality and develop team understanding of the technologies we use

LUCASFILM ANIMATION JUNE 2011-MAY2013

PIPELINE TECHNICAL DIRECTOR - "STAR WARS: DETOURS"

Lead data pipeline for animated TV series from concept art, through storyboarding, editorial, and final delivery. Worked as "boots on the ground" developer to solve workflow issues. Designed technical processes increasing efficiency while meeting production schedule.

Key Contributions

- Lead three-person technical hub for animated production providing mentorship and code review for production Python scripts
- Troubleshot, maintained, and enhanced mission critical Python-based automated media conversion pipeline responsible for delivery of all content from storyboards to final frames
- Worked with overseas partners and created tech solutions to ensure tracking, delivery, and quality
- Built out Python-driven workflow with PyQt interface for assembling composite assets from a component asset database and targeting an array of output file formats

LUCASFILM ANIMATION JUNE 2010-JUNE 2011

JR. SOFTWARE ENGINEER

Contributed to a team building global pipeline solutions in Python for the collective Lucasfilm companies. Collaborated with counterparts across LucasArts and Industrial Light & Magic to deliver shared solutions for shared goals.

Key Contributions

- Maintained and enhanced media management and conversion system tracking shot iterations from story to final
- Worked with team to design and build a filesystem abstraction layer in Python enabling smart disk management and flexible toolchains
- Built a custom Maya node to provide asset level of detail control within the shot production pipeline
- Created custom distributed rendering tool in Python to free up animators and workstations

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LUCASFILM ANIMATION MAR. 2009-JUNE 2010

ASSOCIATE TECHNICAL DIRECTOR - "STAR WARS: THE CLONE WARS"

Provided tech support and Python pipeline development on a dynamic four-person team tasked with giving directors and story artists whatever tools they needed to tell stories fit for review by George Lucas. Worked with Industrial Light & Magic engineers to integrate bleeding edge storytelling software into the pipeline of a fast moving animated television series.

Key Contributions

- Maintained automated media processing to editorial ensuring solid metadata tracking for later conversion from proprietary formats for delivery to external vendors
- Built Python tools to provide detailed metrics from 3D scenes so producers can have early analysis of show complexity and asses budget impact
- Implemented Python pipeline to provide cameras and other scene data to downstream departments
- Worked closely to with artists to develop Python tools to speed up everyday workflow

LUCASFILM ANIMATION AUG. 2007-FEB. 2008

ASSETS PRODUCTION COORDINATOR - "STAR WARS: THE CLONE WARS"

Served as production liaison for CG models, textures and rigs across Marin County, Singapore, and Taipei offices.

Key Contributions

- Assessed episodic needs to ensure complete and timely delivery of 3D assets through all production phases
- Worked closely with tools and Information Systems groups to design solutions for workflow and production management

EDUCATION

Brooks Institute of Photography — B.A. Film and Video Production 2005

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