

ARUMUGAM I

VFX Development Lead | Pipeline Engineering & AI

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SUMMARY

VFX Development Lead and engineer with 10+ years of experience building production tools, pipeline systems and automation for animation and VFX. Experienced in Python, C++, USD/OpenUSD, Maya, Houdini and pipeline architecture, with hands-on work across AI/ML, generative AI and local agentic workflows. Built and led development of a modular USD-based production pipeline from core architecture to production deployment, while researching AI-driven workflows for roto, 3D reconstruction, mocap, lip-sync and artist automation.

CORE EXPERTISE

AI / ML	Applied AI/ML, computer vision, generative AI, local LLMs, agentic workflows, audio ML
Pipeline Engineering	Pipeline architecture, production automation, DCC integration, workflow systems
USD / Graphics	OpenUSD, USD pipeline architecture, USD publishing/gathering, Hydra
VFX / DCC	Maya, Houdini, Nuke, Katana, Blender
Development	Python, C++, Cython, MEL, JavaScript, Qt/PySide6, Vue/Vite/Nuxt

PROFESSIONAL EXPERIENCE

Development Lead — [ZebuFX](#)

Mar 2025 – Present • Bangalore, India

- Architected and developed a modular USD-based production pipeline from core architecture to production-ready deployment, largely single-handedly.
- Built pipeline infrastructure and artist-facing tools across Maya and Houdini, including USD publishing, gathering, playblast and workflow automation.
- Developed and maintained the pipeline core using USD, C++, Python/Qt and JavaScript, integrating production workflows across departments.
- Lead the pipeline development team, driving architecture, implementation, debugging and production support.
- Developed tools spanning asset/shot workflows, USD management, publishing, QC and production automation.
- Deployed and maintained the pipeline in active studio production.

Technical Director — [Technicolor Group](#)

2022 – 2025 • Bangalore, India

Selected productions: Mufasa: The Lion King, Transformers: Rise of the Beasts, Ant-Man, Aquaman and the Lost Kingdom, Kraven, Leo, Atlas, Back in Action, The Little Mermaid.

- Developed production tools and automation for Maya, Houdini and Katana workflows.
- Solved complex technical challenges involving world-scale consistency and high-flying action sequences.
- Developed automation systems for ragdolls, playblasts and headless production tasks.
- Provided technical problem solving and pipeline support across production.
- Contributed to production workflows across animation, rigging and technical departments.

Founder & Developer — [CgKode](#)

2021 – 2022 • Puducherry, India

- Built and commercialized production-focused Maya tools including Frigger, Talkey and PlayRef.
- Frigger: automated facial rigging workflow; Talkey: automated lip-sync; PlayRef: Maya reference/media management.
- Built products using Python, ML, JavaScript, Cython and Rust, including product development and distribution.
- Products reached 10,000+ users.

Pipeline Developer — [Saneeshwar Animations](#)

2016 – 2021 • Puducherry, India

- Developed custom tools and pipeline solutions for animation/VFX workflows.
- Worked as pipeline developer and team lead supporting a team of approximately 20 artists.
- Built production tools and automation to improve workflow efficiency and supported technical training.

SELECTED AI / R&D;

AI-Assisted Roto / Human Removal

Developed an automated people-removal workflow using SAM and SAM 3D models to explore automated human roto for video compositing.

Single-Image - Gaussian Splat Reconstruction

Built a workflow combining generated feed video, COLMAP and Gaussian splats to reconstruct 3D scene representations from limited source imagery, including single-image inputs.

AI-Based 3D Reconstruction

Explored efficient local generation of 3D assets from images using locally runnable generative models.

Video - Motion Capture

Implemented AI-assisted video-to-mocap workflows using SAM Body 3D for animation and rigging exploration.

Local AI Agent for Maya

Built a lightweight local AI agent for Maya that interprets artist instructions and executes actions directly inside the DCC.

AI Pipeline Automation

Developed local AI-driven pipeline management and automation workflows for production task orchestration.

Multilingual Phoneme Detection

Trained audio data for multilingual phoneme detection to support automated lip-sync generation in Talkey.

SELECTED PROJECTS

METAL

Modular USD-based production pipeline built for studio workflows; core, Maya/Houdini tools, USD publish/gather, playblast and workflow tooling.

Hexo

Local-first AI agent architecture exploring lightweight LLM deployment, tool use, memory and automation.

Embedded AI Agent

Personal R&D; exploring local AI agents on constrained devices such as Raspberry Pi Zero-class hardware.

TECHNICAL SKILLS

Programming	Python · C++ · Cython · MEL · JavaScript
AI / ML	LLMs · Agentic AI · Computer Vision · Generative AI · Audio ML · 3D Reconstruction
VFX / DCC	Maya · Houdini · Nuke · Katana · Blender
USD / Graphics	OpenUSD · USD Hydra · OpenGL
Application Development	Qt · PySide6 · PyQt6 · Vue · Vite · Nuxt
Pipeline	ShotGrid · OCIO · Git · REST APIs · Production Automation

EDUCATION

B.Sc. in Animation Technology — Bharathiar University

2012 – 2016 • Coimbatore, India

Portfolio: <https://arumugam.dev>