Patrick Thomas Peluse

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Career Objective:

Make a great impact in an organization by solving problems both creative and technical. Assist in the creative process and challenges which include various media types involving traditional arts, film, game development, prototyping, simulation, visual development, MR, VR, ML, and AR.

Skill Set:

- State machine setup in EMotionFX, animation state and blends, morph targets.
- Advanced facial rigging setup and character rigging for realtime root driven Animation.
- Scalable solutions for character generation, rendering, fkik retargeting, automation.
- Custom render and animation pipelines for synthetic data generation.
- CG for Deep Learning(hi-res realistic indoor environments rendering in Vray and Unity(people, hands, eyes)
- Leap Motion SDK
- PBR Rendering, Marmoset Sky Shop, Substance Designer, Substance Painter, Shader Forge
- Final IK full body setup in Unity
- C# application development with Unity for mobile.
- Scripting in Python, tools for artists and researchers in production using Maya for deep learning.
- Proficient 3d modeling using NURBS (Maya), Polygons, Topology, with advanced UVing techniques.
- Comfortable in low to high poly working environments generating normal mapping and vector displacement
- Paint textures, render layers, bake maps, build node based and scripted material shaders.
- Setup FK / IK rig and skin in Maya and or 3dsmax including FBX export with animation cache for realtime.
- Use of Particle Effects (Particle Flow), Reactor Simulations (3dsmax), Character Studio, and Mocap workflow.
- Advanced lighting and rendering techniques using Mental Ray, and Vray.
- Augmented Reality and content creation for next gen applications.
- Look Development on Characters, Indoor Environments, 3D Browser UI.

Oculus VR, Pittsburgh, PA   *March 2018 − Jan 2023*

Senior Technical Artist IV

- Data generation for machine learning both real-time and offline in Unity HDRP and Maya Vray Next
- Managed design end to end development of Realtime Simulator, QA, Training Data, Future Headsets, and Capture Systems. Lead developer, coding, rigging, assets, scenes rendering optimization, VR.
- Setup batch rendering systems and scripting for both local rendering, internal farm, and cloud.
- Look Development for dataset generation. Multiview Realistic Indoor Environemtns, 3dsmax, Day to Night for NERFS and reconstruction. Custom JSON export camera intrinsic, extrinsic, and render optimization.
- C# Scripting, Python, Rigging, Animation Re-targeting, QA, Art Direction, Custom Tool Creation

Magic leap , San Francisco, CA   *April 2014− Nov 2017*

Prototype Developer

- Make prototypes using game engines Unity and Unreal and tools for gesture recognition, computer vision
- Rendering and pipeline of synthetic data for machine / deep learning
- C# Scripting, Rigging, Animation, UI/UX, Art Direction, Tool creation for researchers.

Senior Technical Artist

- Ensure new tools and technology are pipeline efficient and deliver the best possible results for teams.
- Unity3d C# Scripting, Rigging for Realtime, Animation, Executive AR Demos, UI/UX, and Conceptual Drawings

Meta Vision, Portola Valley, CA   *November 2013- January 2014*

Technical Artist

- Created CG elements. Modeling, Textures, Created Shaders, Materials, and performed Rigging tasks for AR Space Glasses. Animated things. UI and UX Design and integration.

Circuits for Fun, Port Saint Lucie, FL   *1.5 years*

    Co-Creator

- Helped integrate custom microcontroller and custom sensor suite into UnityGame Engine and other applications. Search "interactive development kit" on kickstarter.com. https://bit.ly/2KZWzsr
- Built breadboards, unity apps with sensors, demos, had fun a lot of fun.

Digital Domain, Port Saint Lucie, FL   *February 2011- September 2012*

    Stereoscopic Animator

- Converted upcoming film projects to Stereo 3d.

    Generalist Assignment

- Assist in the development of 2012 Pathfinder Award Presentation   *1 Week*
- Model, Texture, Light, Animate Cameras, Render, and Composite final passes together.

    Look Surfacing / Texture and Sculpting   *6 Months*

- Texture / Sculpt hi-res animal and foliage models for upcoming feature "The Legend of Tembo."
- Help assist in the development and testing stages of early pipeline implementation.

    Stereoscopic Animator   *1 year*

- Convert source film to 3d stereoscopic viewing. Recognize parallax and spacial differences between object's moving on screen.
- Rotoscope and 2d tracking.
- Animate objects in 3d space.
- Create Clean Plates, 2d Tracking, 3d Tracking, Color Keying, Re-grain Film.

Autodesk, Inc, San Francisco, CA and San Rafael, CA Headquarters   *October 2004 -2007*

    Localization Engineer Intern (two separate positions) Media and Entertainment Division

- Created GUI's for Essential Skills Video tutorials shipped with all localized versions of 3dsMax9.
- Created and composed all localized Essential Skills Videos for 3dsMax9.
- Leveraged program files for the localized version of 3dMax 7, 7.5, 8, 8.5, 9.
- Re-sized and Assembled GUI dialog windows functions to meet appropriate program appearance.
- Created test scripts, located bugs, created reports, and reconfigured 3dsmax for proper functionality.
- Localized all graphics for the New Feature Guide, Reference, and Tutorials for 3dsMax 7.
- Black Box testing and QA.

Academy of Art University, San Francisco, CA   *Dec 2010-Present*

- Masters in Fine Arts, 3D Modeling, Gaming, Texture Painting, Conceptual Art Studies.

Academy of Art University, San Francisco, CA   *Graduation: May 2008*

- Bachelors in Fine Arts, 3D Modeling, Texture Painting, Rendering, Traditional Art Studies.

ITT Technical Institute, Pittsburgh, PA   *Graduation: June 2003*

- Associates in Specialized Technology Degree, Information Technology – Multimedia
- Cumulative GPA: 3.95. Recognized for achieving Highest Academic Honors.

Software Experience
ARKIT
OpenVR
Oculus SDK
Mari
NukeX
Maya 6.0 – 2023
3d Studio Max 4.0 - 2017 Zbrush 2.0 - 4.1
Mudbox 2011-2016
Vray 2-Next
Substance Painter
Unreal Engine 3, 4, 5.2, 5.3
Unity 3D 2013->2022.3.F1 HDRP
Mechanim EMotionFX Wrap 3D
ARCore
Marvelous Designer
Metashape

Metaio SDK
Mocha Pro
Headus UV Layout
Crazy Bump
Adobe Photoshop (6 - CS5)
Dreamweaver (4 - CS4) Adobe Flash (5 - AS3) Adobe Premiere Pro
Adobe After Effects
Quicktime Pro
Camtasia Studio
Shader Forge
Marmoset Sky Shop
Thinkbox Deadline
Shotgun
Ornatrix (Hair Sim and Groom)
Mixamo
Omniverse
Reality Capture
Marvelous Designer

Scripting
C#
HTML
PHP MYSQL
JOOMLA CMS
Action Script 3
Python
Mel
OpenCV
HLSL
Micro Python

ML
PyTorch
Tensor Flow
Docker

Applied Studies
Color Theory
Human Anatomy
Animal Anatomy
Life Drawing
Advanced Lighting Studies
Game Development
Machine Learning
Scalable Synthetic Data
Pose Estimation

Version Control
Git, Enterprise and Git
Perforce

OS
Windows
OSX
Linux
Lumen OS
Android SDK

Licenses & certifications
Coursera
AI For Everyone Certificate 2019
https://coursera.org/share/4fcdf18f7f2ba034669d752f5659fb7f

OpenCV School
Ongoing certifications for ML

Publications:

Mutual Scene Synthesis for Mixed Reality Telepresence

In this paper, we propose a novel mutual scene synthesis method that takes the participants' spaces as input, and generates a virtual synthetic scene that corresponds to the functional features of all participants' local spaces. Our method combines a mutual function optimization module with a deep-learning conditional scene augmentation process to generate a scene mutually and physically accessible to all participants of a mixed reality telepresence scenario
https://arxiv.org/abs/2204.00161 TBA April 1, 2022

Information-Theoretic Online Multi-Camera Extrinsic Calibration
IEEE Robotics and Automation Letters TBA January 4, 2022
Unity based Simulator, Bodies and Rigging, Camera Rig, Animation Retargeting, Ground Truth Data, Environment and Rendering setup using HDRP

https://ieeexplore.ieee.org/abstract/document/9691878

Constraining Dense Hand Surface Tracking with Elasticity
SIGGRAPH Asia 2020 December 1, 2020
Hand rigging, UVs, Synthetic Multicamera Renders including pose/geo as ground truth

https://dl.acm.org/doi/abs/10.1145/3414685.3417768

SelfPose: 3D Egocentric Pose Estimation from a Headset Mounted Camera October 10th, 2020
IEEE Transactions on Pattern Analysis and Machine Intelligence(PAMI Journal) November 1, 2020
Rendered additional Synthetic third person view including depth.

https://ieeexplore.ieee.org/abstract/document/9217955

xR-EgoPose: Egocentric Human Pose from a HMD Camera
The IEEE International Conference on Computer Vision(ICCV) July 1, 2019
Created simulator and dataset for training data. Dataset has been release publicly and can be found here:
https://github.com/facebookresearch/xR-EgoPose

https://openaccess.thecvf.com/content_ICCV_2019/html/Tome_xR-EgoPose_Egocentric_3D_Human_Pose_From_an_HMD_Camera_ICCV_2019_paper.html

Synthesizing Novel Spaces for Remote Telepresence Experiences October 17, 2022

2022 IEEE International Symposium on Mixed and Augmented Reality Adjunct (ISMAR-Adjunct)

Novel Mutual Scene Synthesis (MSS) system. The MSS system takes the partici-pants' surrounding environment as input, and synthesizes a virtual scene that corresponds to the functional features of all participants' physical spaces. By combining a function optimization module with a deep-learning conditional scene augmentation

https://ieeexplore.ieee.org/abstract/document/9974278