

# Morteza Ramezanali

[ Computer Graphics Supervisor | Developer ]

moto@cgdna.com  
Vancouver, Canada

Summary

I am a proactive, passionate computer graphics supervisor and developer mainly focused on digital characters. My works are being used on titles like FIFA, Battlefield, Star Wars: Battlefront, NHL and Dragon Age.

- Excellent understanding in Image and geometry processing, Computer vision, Structure from motion, Appearance capture including reflectometry, polarimetry and colorimetry related to digital characters and likeness.
- Solid understanding in Facial animation, Facial rigging techniques and Performance capture.
- Extensive knowledge of character likeness and animation acquisition hardware, software and setup.
- Good understanding of 3D mathematics, numerical optimizations and linear algebra.
- Proven track record in technology incubation and productization.
- Experienced in technical leading through mentoring and coaching.

## Computer Graphics Supervisor / Developer – Electronic Arts, Dec 2015 – Present

Design and developing "Light-Shield" scanning technology (Hardware / Software), the next generation of multi-view facial scanning system that allows for capture of human faces with great accuracy and exceptional fidelity. Light-Shield uses an active lighting to utilize photometric stereo to reconstruct mesostructure detail of human skin with sub-millimeter precision in conjunction with stereo reconstruction for the geometric shape of the human face. The multi-phase polarization allows the system to capture and process accurate skin color and reflectance.

Continuing developing "FrameFx" by implementing many algorithms and techniques including Multiview photometric harmonic, Near distortion free spectral conformal parameterization and packing, Multi-band surface details transfer, Edge aware texture fusion blending.

## Senior Technical Artist / Developer – Electronic Arts, Oct 2012 – Nov 2015

Developing "Captivate", a set of high performance, artist friendly plugins for Maya to solve challenges of 4D performance capture and 3D geometry scanning including: Re-targeting shapes and expressions from a high resolution scanned surface to a custom mesh with an arbitrary topology, Mesh construction from un-ordered sparse 3D points by implementing Delaunay triangulation and discrete conformal surface parameterization, Dense data sets interpolation using sparse data by implementing weighted radial basis function with various kernels, Non-destructive transfer of low and high frequency details from scanned geometry to 4D processed mesh, Volume preserving Laplacian mesh relaxation, Feature preserving bilateral mesh de-noising, Rigid transform estimation with scale compensation, Feature based alignment, Linear and non-linear iterative closest point alignment, Active alignment for decoupling rigid transformation from 4D performance capture.

Developing "FrameFx", a lightweight and multi-threaded Maya like dependency graph API to implement various algorithms and pipelines including automated multi-array camera radiometric and colorimetric calibration, Multi-image color fitting and consistency operators, Non-rigid image registration and temporal alignment, Photometric stereo.

Experiences

## Lead Technical Artist / Programmer – Anima, Jun 2011 – Nov 2012

Developing "FLEX", an artist friendly feather system (styling and simulation) for Maya, Pipeline design and programming including data flow across the studio, On-set supervision, Character rigging, Look development, Photo-realistic lighting and match lighting, Shot finalizing and rendering, 3D Camera tracking, Technical leading and mentorship to the artists, Working with the artists to ensure that all assets and shots are delivered within the budgeted time while meeting the standards of the show, Assessing shots to determine and enforce the appropriate technical setup and workflow.

## Technical Artist / Programmer – Clockwork VFX, Nov 2008 – Jun 2011

Developing "FLUX", an approximate image based lighting tool for Maya, Digital lighting, Look development, 3D Camera tracking, Facial tracking and interpolation using stereo pods, RBD and soft-bodies simulation, Fluid and liquid simulations, Enhancing data flow between Maya and Lightwave, Developing plug-in to visualize DCM data in 3D, Setting up render layers and passes, Technical compositing and effects, Designing studio's network, servers and farm infrastructure.

## Technical Artist – The Chimney Pot, Aug 2006 – Oct 2008

Digital lighting and look development, developing "Mathematics nodes for Maya" to enhance the process of character rigging and procedural animation, 32bit color and range diagnostic operator for Fusion, "Meta locators" to store meta data in Maya scenes, Shot assembling and scene optimization, Particles and cloth simulation, Hard surface modeling (procedural / image-based), 3D Camera tracking, Compositing, Designing the studio's network infrastructure, servers and render farm.

Related Projects	<b>Stereo / Multi-view camera calibration using one-dimensional calibration wand for VR.</b>					
	Implementing stereo and multi-view wide angle and fish eye lens camera calibration using one-dimensional calibration wand, aka Mocap wand, for VR. The system can solve for camera extrinsic and intrinsic including focal length, principle point, distortion coefficients and radial symmetry using full and back projection model.					
DEV	C++ Python MATLAB	Maya API / MEL Intel TBB Intel MKL	OpenMP Boost PCL	OpenCV Eigen Coverity	Visual Studio CMAKE Perforce	Doxygen Jira
DCC	Maya Mudbox	Arnold MentalRay	Unreal Editor EA FrostEd	Fusion Nuke	Realflow Photoshop	Boujou Shotgun
Edu / Cert	<b>B.A in Digital Arts and Media - Major in Computer animation</b> 2006 - 2009, Middlesex University					
	<b>Autodesk Authorized Developer</b> Since 2012					

moto@cgdna.com, Vancouver Canada