Yansi Yao

PERSONAL DETAILS

Date of Birth: April 1, 1982
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EDUCATION

Master of Engineering, majored in Computer Applied Technology **September 2004-July 2007**

- **Capital Normal University**, Beijing, China.

Bachelor of Engineering, majored in Computer Science and Technology

- **Henan University of Technology**, ZhengZhou, Henan, China. **September 2000-July 2004**

COMPUTER SKILLS

Languages: C/C++, Python, Shell, Perl, x86ASM
Development Tools: MSVC, CodeBlocks, CMake, SVN/Git, MayaAPI/mel, OpenCollada, OpenGL/GLSL, OGRE, Open Dynamics Engine, PhysX, Bullet Physics Engine, MASM
Graphics Tools: Maya, Blender, Photoshop
Operation Systems: Windows, Linux
English: IELTS 6.0(L7.0/R7.0/W5.0/S5.5)

WORKING EXPERIENCE

R&D Engineer **September 2017 - Present**

TD Department, **Beijing Red Dragon Media Limited Company**

- Redesigned and implemented the automation pipeline for Maya plug-in development process, including the build, test and deployment processes on both Windows and Linux platforms. It supports the development process of the C++/Python plug-in of Maya and Nuke, and can be extended to support other DCC softwares.
- Provided a solution for mapping the index of vertexes of a mesh to another mesh if they have the same topology.
- Developed a tool to randomize the position of vertexes of a mesh.
- Developed a tool to change the position of vertexes of a mesh by changing an auxiliary curve.
- Maintained the Alembic plug-in for Maya, including building the source code of Alembic, and exporting&importing the data of multiple UV set by using PyAlembic and XML.
- Improved the performance of some modules in the production pipeline.

Maya Technical Director **January 2015 – January 2016**

PLE Department, **Base FX**

- Constructed the software development process for Maya C++ plug-in, including plug-in development, testing and deployment.
- Implemented two automation processes from scratch. One was for building the plug-in from source code automatically, the other was for testing the plug-in automatically. These two processes saved a huge amount of time on building, testing and deploying the C++ plug-ins

for different versions of Maya and on different Operating Systems.

- Developed the prototype of a tool which implemented the major function of Maya's BlendShape node by mapping partial vertexes, rather than all vertexes, between two meshes.
- Improved an existing tool which implemented blendshape function in Maya with dual-quaternion parameter.
- Developed a Maya C++ plug-in for the project of the film *Star Wars Episode VII*. This plug-in was used to animate BB-8 by calculating a sphere's rotation parameters from its translation parameters.
- Maintained Maya Alembic export plug-in.
- Analyzed and developed several SOuP nodes which demonstrated how to apply the methodology of software re-usability to Maya C++ plug-in development process.

Software Engineer **June 2013 - December 2014**

R&D Department, **ShangHai CudaTec Technology Development Limited Company**

- Took charge of the development of a Maya plug-in which translated the following data to a specific renderer:
  - Geometry(Polygon, NURBS, Subdiv, Particle, NParticle, Hair), Instance.
  - Light(Point light, Area light, Directional light, Spot light, Mesh light, User-defined light).
  - Most of Maya internal render nodes(Surface shader nodes, Displacement shader nodes, Shading group node, Texture nodes, Utility nodes and etc).
  - User-defined shader, Shader Graph, AOV.
  - Rendering mode(interactive rendering, IPR, Batch rendering, swatch rendering).
- Responsible for planning, software design, development, collaboration, code review, testing and production release. Used agile methodologies in the project development: continuous integration, test-driven development, unit testing and automation testing; took the responsibility for releasing the software product from version alpha1 to version alpha5.
- Constructed and maintained the GIT repository server for the team.
- Provided technical support for clients and users.

Software Engineer **June 2012 - April 2013**

Production Department, **Geodo Space Information Technology Limited Company**

- Developed a tornado particle effect for `OpenSceneGraph` engine.
- Trimmed `OpenSourceSoftwareImageMap` which is a third-party library used in the software product of the company.

Software Engineer **March 2011 - May 2012**

3D Graphics Department, **Institute of Automation Chinese Academy of Sciences**

- Responsible for developing a 3D game based on *RealXtend* by integrating *Kinect* and *OgreHaptics*, and by implementing the UI localization.
- Implemented the fluid surface construction based on Meta-ball algorithm.
- Integrated *Blender*'s GPU renderer *Cycles* with parallel rendering middle-ware *Equalizer.*

Maya Technical Director **September 2007 - March 2011**

Technical Support Department, **Xing-Xing Digital Corporation**, Beijing

- Developed the core module of a lip-sync plug-in for Maya. (This plug-in had been registered as the company's proprietary with the software copyright registration ID: 0183406).
- Developed a Maya plug-in for *Redboard* Ltd. This plug-in aiming to translate Maya data to 3ds format was praised by the consumer for its outstanding performance.
- Developed a rigid/soft body dynamic system for Maya with *Bullet Physics Engine.*
- Developed a procedural texture by projecting the closed area of a planar NURBS curve to a

texture.

- Analyzed a time-consuming section in the animation production pipeline. Optimized it by implementing some MEL functions with C++, ending up with saving 90%~95% of the time in that section.
- Implemented the core module in the paper: *A System to Reuse Facial Rigs and Animations.*
- Improved the I/O module for Maya Particle Cache(*pdc) format. Re-implemented the I/O module for Maya Geometry Cache(*.mc) format by using C++ to improve the performance, and simplified the related process by adding user-defined attributes.
- Maintained *LiquidMaya* to export RIB files in the animation production pipeline.
- Designed the architecture of the SVN repository server for the company, focusing on how to simplify the deployment process of the Maya plug-ins. This architecture benefited the animation production departments and the software development department.
- Constructed the SVN server, and developed the backup and restore scripts for this server.

ACADEMIC RESEARCH

Master's Thesis:

- *Research and Implementation of the 3D Operation in Virtual Environment*

(as the first author)

Classical Thesis:

- *Research and Implementation of 3d Graphics Mouse Pickup Algorithm Based on OpenGL*

(as the first author), published in the journal *Computer Application and Research*, 2007 (A3)

Implementation of the academic paper:

- *A System to Reuse Facial Rigs and Animations*

OPEN-SOURCE PROJECTS

- **Basic Algorithms on Discrete Differential Geometry**

  I studied by myself a course(http://brickisland.net/DDGSpring2016/) of Carnegie Mellon University about discrete differential geometry. Here is detail of my implementation: https://www.cnblogs.com/yaoyansi/p/5635012.html.

- **MyMagicBox** (https://github.com/yaoyansi/mymagicbox)
  Role: Creator
  Miscellaneous plug-ins developed in my spare time.

- **Maya2renderer**(https://github.com/maya2renderer/maya2renderer)
  Role: Creator
  Based on *LiquidMaya*, this project aims to provide a framework to translate Maya's data to a renderer, and to integrate the renderer into Maya. It supports three renderers now: *3Delight*, *Elvishray* and *Appleseed.*

- **MayaExporter**(http://code.google.com/p/mayaexporter/)
  Role: Creator
  An experimental project which aims to provide a framework to export Maya's data to a renderer. This project is refactored from *ColladaMaya.*

- **GPExporter**(http://code.google.com/p/gpexport/)
  Role: Contributor
  A light-weight exporter for Maya, I fixed several bugs and did some optimization for this

project. This project had been moved to https://github.com/floitsch/gpexport.

- **Simple Cloth Simulation** (http://blog.csdn.net/yaoyansi/archive/2007/09/05/1774002.aspx)
  Role: Creator
  Implemented Mass-Spring model for the cloth simulation. Independently designed and implemented a fast algorithm for calculating the volume of an arbitrary polyhedron. This algorithm is discussed in the article 'Exact Buoyancy for Polyhedra.' (Catto, Erin. *Game Programming Gems 6.* 175-187).

- **OpenCollada**(http://code.google.com/p/opencollada/)
  Role: Contributor
  Simplified the 3ds export process by using *lib3ds* library, and fixed some bugs for the project. This project had been moved to https://github.com/KhronosGroup/OpenCOLLADA/tree/master/dae23ds_lib3ds.

- **GPUSPHsim** (http://code.google.com/p/gpusphsim/)
  Role: Contributor
  Implemented the fluid surface construction with the Meta-ball algorithm. This project had been moved to https://github.com/oysteinkrog/gpusphsim.