



Morteza Mostajab

computer graphics and visualization fan and researcher

Education

- 2012–2016 **Master of computer science**, *Technische Universität München*, Munich.
Specialization: Computer graphics and visualization
- 2006–2011 **Bachelor of computer engineering**, *Hamedan University of Technology*,
Hamedan, Iran, Major: Computer hardware engineering.
- 2005–2006 **Pre-university**, *National Organization for Development of Exceptional Talents'*
Shahid Beheshti School, Borujerd, Iran.
Major: Mathematics and physics
- 2002–2005 **High school**, *National Organization for Development of Exceptional Talents'*
Shahid Beheshti School, Borujerd, Iran.
Major: Mathematics and physics

Research Interests

Rendering Techniques (Ray tracing and Rasterization)
Virtual Reality
SciVis Techniques
Computer Graphics and Visualization
Object Oriented Programming (OOP)

Master thesis

title *Real-time streamsurface computation and rendering*
supervisors Prof.Dr. Westermann
advisors Dr. Andreas Dietrich, Dr. Frank Michel

Bachelor thesis

title *Incorporating affective states of players in video games*
supervisor Dr. Muharram Mansoorizadeh

Employment

Kasinostr. 24 – 64293 Darmstadt – Germany

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🐦 <https://twitter.com/mmostajab> • 🌐 <https://github.com/mmostajab>

- 2016–Present **Researcher**, *Fraunhofer IGD*, Darmstadt.
Computer graphics research and developments.
Projects:
- VElLaSSco (Visualization For Extremely Large-Scale Scientific Computing) EC project development (VELaSSco.eu).

Publications

- 2016 **Real-time Stream Surface Computation and Rendering**, *Master Thesis*.
Computer graphics research and developments.
Detailed achievements:
- participating in VElLaSSco EC project development;
 - Higher-order primitive ray-tracer implemented in Intel Embree and NVIDIA OptiX.
 - Virtual reality development with LEAP Motion and Oculus SDK.
- 2011 **Incorporating affective state of players in video games**, *Bachelor Thesis*.
Computer graphics research and developments.
Detailed achievements:
- participating in VElLaSSco EC project development;
 - Higher-order primitive ray-tracer implemented in Intel Embree and NVIDIA OptiX.
 - Virtual reality development with LEAP Motion and Oculus SDK.

Teaching

- 2016 **Seminar Course Supervision**, *Technische Universitaet Darmstadt*, Germany.
Detailed achievements:
- Teaching assistant, B.S. Introduction to Programming, M.Sc. Hassan Bashiri, spring 2008.
 - Teaching assistant, B.S. Advanced Programming, M.Sc. Hassan Bashiri, autumn 2008.
 - Teaching assistant, B.S. Introduction to Assembly 80x86 Programming, M.Sc. Hatam Abdoli, spring 2009.
 - Teaching assistant, B.S. Data Structures, Dr. Mir Hossein Dezfoulian, autumn 2009.
 - Teaching assistant, B.S. Operating Systems, Dr. Muharram Mansoorizadeh, spring 2010.
 - Teaching assistant, B.S. Computer Graphics, Dr. Mir Hossein Dezfoulian, autumn 2010.
- 2008–2010 **Teacher Assistant**, *Hamedan University of Technology*, Hamedan, Iran.
Detailed achievements:
- Teaching assistant, B.S. Introduction to Programming, M.Sc. Hassan Bashiri, spring 2008.
 - Teaching assistant, B.S. Advanced Programming, M.Sc. Hassan Bashiri, autumn 2008.
 - Teaching assistant, B.S. Introduction to Assembly 80x86 Programming, M.Sc. Hatam Abdoli, spring 2009.
 - Teaching assistant, B.S. Data Structures, Dr. Mir Hossein Dezfoulian, autumn 2009.
 - Teaching assistant, B.S. Operating Systems, Dr. Muharram Mansoorizadeh, spring 2010.
 - Teaching assistant, B.S. Computer Graphics, Dr. Mir Hossein Dezfoulian, autumn 2010.

Experience

Vocational

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- 2014–2016 **Student Job**, *Fraunhofer IGD*, Darmstadt.
Computer graphics research and developments.
Detailed achievements:
- o participating in VELA^{SSCo} EC project development;
 - o Higher-order primitive ray-tracer implemented in Intel Embree and NVIDIA OptiX.
 - o Virtual reality development with LEAP Motion and Oculus SDK.
- 2014–2014 **Research Assistant**, *TUM's Foerdertechnik Materialfluss Logistik (FML) group*, Garching bei München.
Detailed achievements:
- o Working on 3D-Visualization of electromagnetic field strength distribution.
- 2013–2014 **Guided Research**, *TUM's Prof. Westermann's chair (Computer Graphics and Visualization)*, Garching bei München.
Topic: Measuring and Evaluating Impact of Ray Sorting Algorithms on Coherency of SIMDs in Voxel-Based Path Tracers
- 2013–2014 **Research Assistant**, *TUM's Prof. Navab's chair (Computer Aided and Medical Procedures & Augmented Reality)*, Garching bei München.
Detailed achievements:
- o Working on OpenGL debugging tools.
 - o Implementing advanced ray caster for volume rendering of medical data.
- 2013–2013 **Practical Course**, *TUM's Prof. Cremers's chair (Computer Vision)*, Garching bei München.
Topic: **GPU Programming in Computer Vision**. Implementing optical flow and super resolution algorithms on GPU using CUDA.
- 2012–2013 **Student Job**, *Developer at MetaIO GmbH*, München.
Detailed achievements:
- o Developing different Metaio's Junaio browser channels using HTML5, JavaScript, PHP, and MetaIO creator.
 - o Developing a hair-coloring C++ module using Metaio SDK.
 - o Participating into development of a game using Unity.
 - o 3D content creation and adjustments for mobile AR scenarios using 3D Studio Max.
- 2012–2013 **Practical Course**, *TUM's Prof. Westermann's chair (Computer Graphics and Visualization)*, Garching bei München.
Topic: **Interactive Visual Data Analysis** by using Direct3D 11 and C++.
- 2012–2012 **Student Job**, *Developer at Fortiss GmbH*, München.
Detailed achievements:
- o Implementing an interface using windows message passing API to update the automotive system visualization in Ciro's studio.

Honors, Awards, Fellowships

- o TUM Scholarship for International Students, Summer 2013, Winter 2013-14, and Summer 2015
- o 1st Place in Local Hamedan Azad University ACM Programming Contest, Hamedan Azad University, 2010
- o 1st Place in Local Hamedan University of Technology ACM Programming Contest, Hamedan University of Technology, 2009
- o 2nd Place in Local Bu-Ali Sina Hamedan University ACM Programming Contest, Bu-Ali Sina University, 2007

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Languages

English TOEFL iBT Score(2011): 85 (Reading: 25, Listening: 19, Speaking: 17, Writing: 24)

Persian Mother Language

German Elementary

Computer skills

Advanced in using C/C++, CMake, OpenGL, Vulkan, OpenCL, GLSL shader programming, Qt, **Ray tracing libraries** (NVIDIA Optix, Intel Embree)

Love to use Latex, Git, and Linux

Have used DirectX and HLSL shader programming, CUDA programming, DOxygen Commenting, 3D object modeling and animation using 3D Studio Max, Game engines (Ogre, Irrlicht, Unity, UDK), Windows programming, 80x86 Assembly programming, Microsoft Foundation Classes (MFC), Thrift C++ API, WinSocket Programming, Creating AR content using Metaio SDK, Metaio Creator, and HTML5+Javascript+PHP (not available anymore since Metaio is sold to Apple), Pascal