Andreas-Alexandros Vasilakis

Job Title	Computer Graphics R&D	
Personal Information	Born	12-10-1983, Corfu, Greece
	Address	43, Dim. Malagardi Str, Korydallos, Athens GR18120, Greece
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Education

The Ioannina University, Dept. of Computer Science & Engineering, Greece
(Advisor: Professor Ioannis Fudos)

PhD **Sep 2008 to Jan 2014**
Thesis title: *Direct Rendering of Feature-based Skinning Deformations*

Master (8.92/10.0) **Feb 2006 to Jul 2008**
Thesis title: *Robust Skeletal Animation of Articulated Modular Solid Objects*

Bachelor (7.22/10.0) **Sep 2001 to Feb 2006**
Thesis title: *3D Reconstruction of Objects using 2D Figures*

2^{th} **Senior High School** (18.2/20.0), Corfu, Greece **Sep 1998 to July 2001**

Industrial Experience

Think Silicon S.A., IT Company, Greece

Senior Software Engineer **Sep 2018 to Dec 2018**
Software Engineer **Nov 2017 to Aug 2018**

Software design, development, build, testing, integration, monitor, documentation of graphics drivers and development kits for low-power graphics solutions. Testing was performed on both software reference mode and Xilinx FPGA SoCs for Nema GPUs. Participation at weekly OpenGL & Vulkan teleconferences and face-2-face meetings of Khronos Group; responsible for the evolution of these APIs.
Technologies used: C, C++, EGL, OpenGL ES, Vulkan, Shell Scripting, CMake, Git, LaTeX, Buildbot, Jenkinks, Phabricator.

Research Project Experience

Think Silicon S.A., IT Company, Greece

Graphics Software Engineer **Nov 2017 to May 2018**

"*LPGPU2: Low-Power Parallel Computing on GPUs 2*"

Development of software development kit for creating power-aware, high-performance software applications for Wearable, IoT, and Embedded display devices.
Technologies used: C, C++, OpenGL ES, ESSL, CMake, Git, LaTeX.

Graphics Software Engineer **Jun 2018 to Nov 2018**

"*GPU-WEAR: Ultra-low power heterogeneous Graphics Processing Units for Wearable/IoT devices*"

Software architecture design and development of *GLOVE*; an open-source cross-platform software library that translates at runtime OpenGL ES API calls to Vulkan API commands. Technologies used: C, C++, EGL, OpenGL ES, Vulkan, ESSL, SPIR-V, Git, GitHub.

Information Technologies Institute, Centre for Research & Technology Hellas, Greece

Postdoc Researcher **Feb 2016 to Oct 2017**

"*FRAILSAFE: Sensing and predictive treatment of frailty and associated co-morbidities using advanced personalized models and advanced interventions*"

I was mainly responsible for the coordination of the first work package of the FrailSafe project. Among others (e.g. serious games design and content creation & interactive geovisualizations), I developed high-performance multi-fragment rendering solutions for mobile and VR/AR devices.
Technologies used: Augmented Reality, Android, Java, OpenGL ES, Processing, Game Design, Blender, Trello, Slack.

Athens University of Economics and Business, Dept. of Informatics, Greece

Postdoc Researcher **Apr 2014 to Jan 2016**

"*GLIDE: Goal-driven Lighting for Dynamic 3D Environments*"

Research and development of high-performance multifragment rendering methods with applications on global illumination and image-based techniques.
Technologies used: C++/C#, OpenGL, Optix, TortoiseSVN, LaTeX.

"*PRESIOUS - Predictive digitization, restoration and degradation assessment of cultural heritage objects*"

The Ioannina University, Dept. of Computer Science & Engineering, Greece

Postdoc Researcher **Mar 2014 to Mar 2014**

"*Epirus On Androids*"

I was responsible for dissemination, communication, community building and exploitation aspects of the project.

Student Researcher **Jul 2008 to Aug 2008**

"*AEOLUS: Algorithmic Principles for Building Efficient Overlay Computers*"

Student Researcher **Oct 2007 to Dec 2007**

"*Georouting: Placing and Routing in VLSI using Geometric Constraints*"

University of Cyprus, Dept. of Computer Science, Cyprus

Visiting Student Researcher **Mar 2012 to Jun 2012**

"*LLP/ERASMUS practical training program on applied research in Computer Graphics*"

The Aegean University, Dept. of Prod. & Systems Design Engineering, Greece

Research Associate/Junior Developer **Feb 2009 to Oct 2009**

"*Methods development for point cloud decomposition based on 3D Jewellery applications*"
I was responsible for the implementation of advanced 3D mesh segmentation algorithms.
Technologies used: C++, OpenGL, OpenMP.

Research Associate/Junior Developer **Dec 2007 to Mar 2008**

"*ByzantineCAD: CAD/CAM Methods for Reproducing Byzantine Jewellery*"
I have been involved in the development of a point cloud rendering system for 3D CAD models. Especially, I worked on porting the triangulation and normal estimation procedures on the GPU.
Technologies used: C++, OpenGL.

Journal Publications

A. Lalos, **A. A. Vasilakis**, A. Dimas and K. Moustakas, *Adaptive Compression of Animated Meshes by Exploiting Orthogonal Iterations*, The Visual Computer (Proceedings of CGI 2017), Vol. 33, Issue 6, pages 811-821, 2017. DOI: 10.1007/s00371-017-1395-4

A. A. Vasilakis, G. Papaioannou and I. Fudos, *k^+-buffer: An efficient, memory-friendly and dynamic k-buffer framework*, IEEE Transactions on Visualization and Computer Graphics, vol. 21, no. 6, pages 688-700, June, 2015. DOI: 10.1109/TVCG.2015.2417581

A. A. Vasilakis and I. Fudos, *Pose Partitioning for Multi-resolution Segmentation of Arbitrary Mesh Animations*, Computer Graphics Forum (Proceedings of Eurographics 2014), vol. 33 no. 2, pages 293-302, April, 2014. DOI: 10.1111/cgf.12327

A. A. Vasilakis and I. Fudos, *Depth-fighting Aware Methods for Multifragment Rendering*, IEEE Transactions on Visualization and Computer Graphics, vol. 19, no. 6, pages 967-977, June, 2013. DOI: 10.1109/TVCG.2012.300

J. Rossignac, I. Fudos, and **A. A. Vasilakis**, *Direct Rendering of Boolean Combinations of Self-Trimmed Surfaces*, Computer-Aided Design, Volume 45, Issue 2, February 2013, pages 288-300, ISSN 0010-4485. DOI: 10.1016/j.cad.2012.10.012

A. A. Vasilakis and I. Fudos, *GPU Rigid Skinning using a Refined Skeletonization Method*, Computer Animation and Virtual Worlds, 22: 27-46, 2011. DOI: 10.1002/cav.382

Conference Publications

A. A. Vasilakis, K. Vardis, G. Papaioannou and K. Moustakas, *Variable k-buffer using Importance Maps*, In Proceedings of the 38th Annual Conference of Eurographics (EG '17), Short Papers, pages 21-24, Lyon, France, April 24-28, 2017. DOI: 10.2312/egsh.20171005

A. A. Vasilakis, I. Fudos and G. Antonopoulos, *PPS: Pose-to-Pose Skinning of Animated Meshes*, In Proceedings of the 2016 Computer Graphics International Conference (CGI '16), Short Papers, pages 53-56, Heraklion, Crete, Greece, June 28-July 1, 2016. DOI: 10.1145/2949035.2949049

K. Vardis, **A. A. Vasilakis** and G. Papaioannou, *DIRT: Deferred Image-based Ray Tracing*, In Proceedings of the 8th Conference on High-Performance Graphics (HPG '16), pages 1-11, Dublin, Ireland, June 20-22, 2016. DOI: 10.2312/hpg.20161193

K. Vardis, **A. A. Vasilakis** and G. Papaioannou, *A Multiview and Multilayer Approach for Interactive Ray Tracing*, In Proceedings of 20th meeting of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games (I3D '16), pages 171-178, Redmond, WA, USA, February 27-28, 2016. DOI: 10.1145/2856400.2856401

A. A. Vasilakis and G. Papaioannou, *Improving k-buffer methods via Occupancy Maps*, In Proceedings of the 36th Annual Conference of Eurographics (EG '15), Short Papers, pages 69-72, Zurich, Switzerland, May 4-8, 2015. DOI: 10.2312/egsh.20151017

A. A. Vasilakis and I. Fudos, *k^+-buffer: Fragment Synchronized k-buffer*, In Proceedings of the 18th meeting of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and

Games (I3D '14), pages 143-150, San Francisco, California, USA, March 14-16, 2014. DOI: 10.1145/2556700.2556702

A. A. Vasilakis and I. Fudos, *S-buffer: Sparsity-aware Multi-fragment Rendering*, In Proceedings of the 33rd Annual Conference of Eurographics (EG '12), Short Papers, pages 101-104, Cagliari, Italy, May 13-18, 2012. DOI: 10.2312/conf/EG2012/short/101-104

A. A. Vasilakis and I. Fudos, *Skeleton-based Rigid Skinning for Character Animation*, In Proceedings of the Forth International Conference on Computer Graphics Theory and Applications (GRAPP '09), pages 302-308, Lisbon, Portugal, February 5-8, 2009.

Poster Publications

A. A. Vasilakis and G. Papaioannou, *Accelerating k^+-buffer using efficient fragment culling*, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games 2015 (Posters), pages 129-129, San Francisco, California, USA, February 27-March 01, 2015. DOI: 10.1145/2699276.2721402

E. Eftaxopoulos, **A. A. Vasilakis** and I. Fudos, *AR-TagBrowse: Annotating and Browsing 3D models on Mobile Devices*, Eurographics 2014 (Posters), Strasbourg, France, April 7-11, 2014.

A. A. Vasilakis and I. Fudos, *Z-fighting aware depth Peeling*, SIGGRAPH 2011 (Posters), Vancouver, Canada, August 7-11, 2011. DOI: 10.1145/2037715.2037801

A. A. Vasilakis, G. Antonopoulos and I. Fudos, *Pose-to-Pose Skinning of Animated Meshes*, ACM/Eurographics Symposium on Computer Animation (Posters), Vancouver, Canada, August 5-7, 2011.

Other Publications

S. Kalogiannis, K. Deltouzos, E. Zacharaki, **A. A. Vasilakis**, K. Moustakas, J. Ellul, V. Megalooikonomou, *Integrating an openEHR-based personalized virtual model for the ageing population within HBase*, BMC Medical Informatics and Decision Making 19: 25, 2019. DOI: 10.1186/s12911-019-0745-8

Technical Reports

A. Gkaravelis, C. Kalampokis, G. Papaioannou, K. Vardis, **A. A. Vasilakis**, *STAR on Interactive Global Illumination Techniques and Inverse Lighting Problems*, GLIDE: Goal-driven Lighting for Dynamic 3D Environments, Deliverable 1.1, August 2014.

Presentations

CS.UOI, *Improving k-buffer methods via Occupancy Maps*, Ioannina, Greece **Feb 2015**

Eurographics '14, *Pose Partitioning for Multi-resolution Segmentation of Arbitrary Mesh Animations*, Strasbourg, France **Apr 2014**

I3D '13, *Depth-fighting Aware Methods for Multi-fragment Rendering*, Orlando, USA . **Mar 2013**

CS.UCY, *Multi-fragment Rendering Solutions*, Nicosia, Cyprus **Mar 2012**

Reviewer

Computers & Graphics, JCGT, CGI, GRAPP

Research Interests

character deformation, animation compression, mesh segmentation, multi-fragment rendering, global illumination, image-based effects, virtual/augmented reality.

Membership

Khronos Group, ACM, EG

Scholarships

The Ioannina University, Dept. of Computer Science & Engineering, Greece

Heraclitus II grant through the operational programme "Education and Lifelong Learning" through the European Social Fund **2010 to 2013**

EPEAEK fund from the University of Ioannina **2006 to 2007**

Awards

ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games

My paper titled "k^+*-buffer: Fragment Synchronized k-buffer*" was among the **four best papers** in I3D'14 **Mar 2014**

ACM Stipend Grant **Mar 2013**

The Ioannina University, Dept. of Computer Science & Engineering, Greece

Highest graduate grade in my class **Mar 2006**

Academic Experience

Athens University of Economics and Business, Dept. of Informatics, Greece

PhD Co-Supervision (with Professor Georgios Papaioannou)

K. Vardis, *Efficient Illumination Algorithms for Global Illumination in Interactive and Real-Time Rendering* **Dec 2016**

The Ioannina University, Dept. of Computer Science & Engineering, Greece

Master Co-Supervision (with Professor Ioannis Fudos)

K. Tziomakis, *Deformation Based Volume Preservation for Mesh Animation* **Jul 2012**
A. Lazos, *Deformation Transfer and Animation Editing* **Jan 2012**
G. Antonopoulos, *Fast Realistic Skinning of Highly Deformable Objects* **Nov 2010**

Bachelor Co-Supervision (with Professor Ioannis Fudos)

P. Savvidou, *Algorithms for normal correction of 3D meshes* **Nov 2011**

Teaching Assistant

Tutoring, creating/grading exercises, and invigilating exams for the undergraduate level courses on Computer Graphics (Xlib, OpenGL) **2008 to 2013**

Technical Skills

Programming Languages: C, C++, C#
Graphics APIs: Vulkan, OpenGL (ES), GLSL, Optix, WebGL
Multimedia Tools: Blender and Adobe Photoshop, Illustrator, Premiere
Experience developing:

- real-time and offline rendering systems.
- high and low-level code optimizations.

Secondary Skills: Android, Java, Python, OpenCL, OpenMP, Processing, HTML/CSS, LaTeX, GitHub

Languages

English (Fluent), Greek (Native)

Personal Interests

Sports & Fitness Activities: Running, Bicycling, Basketball, Soccer
Games: Chess, Video Games, Card Games
Reading: Books, Comics

Military Service

Greek Army **May 2014 to Feb 2015**