

## 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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CONTACT INFORMATION	Web:	<a href="https://abasilak.github.io/">https://abasilak.github.io/</a>
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	LinkedIn, Skype, Twitter, GitHub:	abasilak
EDUCATION	<b>The Ioannina University, Dept. of Computer Science &amp; Engineering</b> , Greece (Advisor: Professor Ioannis Fudos)	
	<b>PhD</b>	<b>Sep 2008 to Jan 2014</b>
	Thesis title: <i>Direct Rendering of Feature-based Skinning Deformations</i>	
	<b>Master (8.92/10.0)</b>	<b>Feb 2006 to July 2008</b>
	Thesis title: <i>Robust Skeletal Animation of Articulated Modular Solid Objects</i>	
	<b>Bachelor (7.22/10.0)</b>	<b>Sep 2001 to Feb 2006</b>
	Thesis title: <i>3D Reconstruction of Objects using 2D Figures</i>	
	<b>2<sup>th</sup> Senior High School (18.2/20.0)</b> , Corfu, Greece	<b>Sep 1998 to July 2001</b>
INDUSTRIAL EXPERIENCE	<b>Think Silicon S.A.</b> , IT Company, Greece	
	<b>Graphics Software Engineer</b>	<b>Nov 2017 to Dec 2018</b>
	Software design, development, build, testing, integration, monitor, documentation, management of graphics drivers and development kits for low-power graphics solutions. Technologies used: C, C++, EGL, OpenGL ES, Vulkan, Shell Scripting, CMake, Git, L <sup>A</sup> T <sub>E</sub> X, Buildbot, Jenkins, Phabricator.	
RESEARCH PROJECT EXPERIENCE	<b>Think Silicon S.A.</b> , IT Company, Greece	
	<b>Graphics Software Engineer</b>	<b>Nov 2017 to May 2018</b>
	<i>“LPGPU2: Low-Power Parallel Computing on GPUs 2”</i>	
	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, L <sup>A</sup> T <sub>E</sub> X.	
	<b>Graphics Software Engineer</b>	<b>Jun 2018 to Nov 2018</b>
	<i>“GPU-WEAR: Ultra-low power heterogeneous Graphics Processing Units for Wearable/IoT devices”</i>	
	Software architecture design and development of <i>GLOVE</i> ; 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**

*“FRILLSAFE: 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, L<sup>A</sup>T<sub>E</sub>X.

*“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**

**Oct 2013 to Mar 2014**

*“CA.V.E.: Caves Virtual Environment”*

I was responsible for the 3D digitization of delicate cultural heritage objects available from Perama's Cave museum. This task included the digital recording via a 3D handheld laser scanner as well as the data processing of the digitized object, which involves the geometric & texture data processing (repairing/fairing & creation/mapping).

Technologies used: Creaform Handyscan 3D Scanner, MeshLab, Geomagic Studio.

**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](https://doi.org/10.1007/s00371-017-1395-4)

**A. A. Vasilakis**, G. Papaioannou and I. Fudos, *k<sup>+</sup>-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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/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](https://doi.org/10.2312/egsh.20151017)

	<p><b>A. A. Vasilakis</b> and I. Fudos, <i>k<sup>+</sup>-buffer: Fragment Synchronized k-buffer</i>, 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: <a href="https://doi.org/10.1145/2556700.2556702">10.1145/2556700.2556702</a></p> <p><b>A. A. Vasilakis</b> and I. Fudos, <i>S-buffer: Sparsity-aware Multi-fragment Rendering</i>, In Proceedings of the 33rd Annual Conference of Eurographics (EG '12), Short Papers, pages 101-104, Cagliari, Italy, May 13-18, 2012. DOI: <a href="https://doi.org/10.2312/conf/EG2012/short/101-104">10.2312/conf/EG2012/short/101-104</a></p> <p><b>A. A. Vasilakis</b> and I. Fudos, <i>Skeleton-based Rigid Skinning for Character Animation</i>, In Proceedings of the Forth International Conference on Computer Graphics Theory and Applications (GRAPP '09), pages 302-308, Lisbon, Portugal, February 5-8, 2009.</p>
POSTER PUBLICATIONS	<p><b>A. A. Vasilakis</b> and G. Papaioannou, <i>Accelerating k<sup>+</sup>-buffer using efficient fragment culling</i>, ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games 2015 (Posters), pages 129-129, San Francisco, California, USA, February 27-March 01, 2015. DOI: <a href="https://doi.org/10.1145/2699276.2721402">10.1145/2699276.2721402</a></p> <p>E. Eftaxopoulos, <b>A. A. Vasilakis</b> and I. Fudos, <i>AR-TagBrowse: Annotating and Browsing 3D models on Mobile Devices</i>, Eurographics 2014 (Posters), Strasbourg, France, April 7-11, 2014.</p> <p><b>A. A. Vasilakis</b> and I. Fudos, <i>Z-fighting aware depth Peeling</i>, SIGGRAPH 2011 (Posters), Vancouver, Canada, August 7-11, 2011. DOI: <a href="https://doi.org/10.1145/2037715.2037801">10.1145/2037715.2037801</a></p> <p><b>A. A. Vasilakis</b>, G. Antonopoulos and I. Fudos, <i>Pose-to-Pose Skinning of Animated Meshes</i>, ACM/Eurographics Symposium on Computer Animation (Posters), Vancouver, Canada, August 5-7, 2011.</p>
TECHNICAL REPORTS	<p>A. Gkaravelis, C. Kalampokis, G. Papaioannou, K. Vardis, <b>A. A. Vasilakis</b>, STAR on Interactive Global Illumination Techniques and Inverse Lighting Problems, GLIDE: Goal-driven Lighting for Dynamic 3D Environments, Deliverable 1.1, August 2014.</p>
PRESENTATIONS	<p><b>CS.UOI</b>, <i>Improving k-buffer methods via Occupancy Maps</i>, Ioannina, Greece <b>Feb 2015</b></p> <p><b>Eurographics '14</b>, <i>Pose Partitioning for Multi-resolution Segmentation of Arbitrary Mesh Animations</i>, Strasbourg, France <b>Apr 2014</b></p> <p><b>I3D '13</b>, <i>Depth-fighting Aware Methods for Multi-fragment Rendering</i>, Orlando, USA <b>Mar 2013</b></p> <p><b>CS.UCY</b>, <i>Multi-fragment Rendering Solutions</i>, Nicosia, Cyprus <b>Mar 2012</b></p>
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	<p><b>The Ioannina University, Dept. of Computer Science &amp; Engineering</b>, Greece</p> <p><b>Heraclitus II</b> grant through the operational programme “Education and Lifelong Learning” through the European Social Fund <b>2010 to 2013</b></p> <p><b>EPEAEK</b> fund from the University of Ioannina <b>2006 to 2007</b></p>

AWARDS	<p><b>ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games</b></p> <p>My paper titled “<math>k^+</math>-buffer: Fragment Synchronized <math>k</math>-buffer” was among the <b>four best papers</b> in I3D’14 <b>Mar 2014</b></p> <p><b>ACM Stipend Grant</b> <b>Mar 2013</b></p> <p><b>The Ioannina University, Dept. of Computer Science &amp; Engineering</b>, Greece</p> <p><b>Highest graduate grade</b> in my class <b>Mar 2006</b></p>
ACADEMIC EXPERIENCE	<p><b>Athens University of Economics and Business, Dept. of Informatics</b>, Greece</p> <p><b>PhD Co-Supervision</b> (with Professor Georgios Papaioannou)</p> <p>K. Vardis, <i>Efficient Illumination Algorithms for Global Illumination in Interactive and Real-Time Rendering</i> <b>Dec 2016</b></p> <p><b>The Ioannina University, Dept. of Computer Science &amp; Engineering</b>, Greece</p> <p><b>Master Co-Supervision</b> (with Professor Ioannis Fudos)</p> <p>K. Tziomakis, <i>Deformation Based Volume Preservation for Mesh Animation</i> <b>Jul 2012</b>  A. Lazos, <i>Deformation Transfer and Animation Editing</i> <b>Jan 2012</b>  G. Antonopoulos, <i>Fast Realistic Skinning of Highly Deformable Objects</i> <b>Nov 2010</b></p> <p><b>Bachelor Co-Supervision</b> (with Professor Ioannis Fudos)</p> <p>P. Savvidou, <i>Algorithms for normal correction of 3D meshes</i> <b>Nov 2011</b></p> <p><b>Teaching Assistant</b></p> <p>Tutoring, creating/grading exercises, and invigilating exams for the undergraduate level courses on Computer Graphics (Xlib, OpenGL) <b>2008 to 2013</b></p>
TECHNICAL SKILLS	<p><b>Programming Languages:</b> C, C++  <b>Graphics APIs:</b> Vulkan, OpenGL (ES), GLSL, Optix, WebGL  <b>Multimedia Tools:</b> Blender and Adobe Photoshop, Illustrator, Premiere  <b>Experience developing:</b></p> <ul style="list-style-type: none"> <li>• real-time and offline rendering systems.</li> <li>• high and low-level code optimizations.</li> </ul> <p><b>Secondary Skills:</b> Android, Java, C#, Python, OpenCL, OpenMP, Processing, HTML/CSS, L<sup>A</sup>T<sub>E</sub>X, GitHub</p>
LANGUAGES	English (Fluent), Greek (Native)
PERSONAL INTERESTS	<p><b>Sports &amp; Fitness Activities:</b> Running, Bicycling, Basketball, Soccer  <b>Games:</b> Chess, Video Games, Card Games  <b>Reading:</b> Books, Comics</p>
MILITARY SERVICE	<p>Greek Army <b>May 2014 to Feb 2015</b></p>