Personal Information			
Name	*Andreas-Alexandros Vasilakis*	**City/Date of Birth**	*Corfu, Greece, 12.10.1983*
Email	*andreas.alex.vasilakis@gmail.com*	**Website**	*https://abasilak.github.io/*

Current Work Position:

- Chief Product Manager/Co-founder, Phasmatic.
- Postdoctoral Researcher/Adjunct Professor, Athens University of Economics & Business, Dept. of Informatics.
- Adjunct Professor, Dept. of Computer Science & Engineering, The Ioannina University.

Education	
09.2008 - 01.2014	Dept. of Computer Science & Engineering, The Ioannina University, Greece ***PhD in Computer Graphics, 10.0***
02.2006 - 07.2008	Dept. of Computer Science, The Ioannina University, Greece ***MSc in Software, 8.92***
09.2001 - 02.2006	Dept. of Computer Science, The Ioannina University, Greece ***BSc in Computer Science, 7.22***

Working Experience	
10.2020 - now	*Phasmatic, P.C., Greece* ***Co-founder/Chief Product Manager***
09.2018 - 12.2018 **10.2017 - 08.2018**	*Think Silicon S.A., IT Company, Greece* ***Senior Graphics Software Engineer*** ***Graphics Software Engineer*** Software design, development, build, testing, integration, monitor, documentation of graphics drivers and development kits for low-power graphics solutions. Participation at weekly OpenGL/Vulkan teleconferences & face-2-face meetings of Khronos Group.

Research Experience	
04.2021 - 06.2021	*Athens University of Economics and Business, Dept. of Informatics, Greece* ***Postdoc Researcher*** ***- EPIC MegaGrants – Rayground*** Research and development on web-based ray tracing solutions and platforms.
03.2021 - 04.2021	***- Original Scientific Publications of Lecturers and Professors*** *Research and academic publishing.*
03.2020 - 06.2021	***- LumiBricks: Modular Illumination Transfer for Photorealistic Visualization on Commodity Hardware*** Research and development on interactive rendering via novel machine learning.
12.2019 - 01.2020	***- Proof-of-concept implementation of coarse shading technologies for the ARM Mali-G76 Bifrost architecture*** Development of coarse shading technique on Android devices.
04.2019 - 10.2019	***- Big Data Visualization for Transaction Data*** Technical Report on ‘‘Recent Information Visualization Research with Applications on Financial Data’’
10.2017 - 05.2018 **06.2018 - 11.2018**	*Think Silicon S.A., IT Company, Greece* ***Computer Graphics Research & Development*** ***- LPGPU2: Low-Power Parallel Computing on GPUs 2*** ***- GPU-WEAR: Ultra-low power heterogeneous GPUs for Wearable/IoT devices*** Software design and development of GLOVE; an open-source cross-platform software library that translates at runtime OpenGL ES API calls to Vulkan API commands.
	Information Technologies Institute, Centre for Research & Technology Hellas, Greece

02.2016 - 10.2017	***Postdoc Researcher*** *FRAILSAFE: Sensing and predictive treatment of frailty and associated co-morbidities using advanced personalized models & advanced interventions* Coordination of the first work package of the project. Serious games design and content creation. Implementation of interactive geovisualizations. Development of high-performance rendering solutions for mobile and VR/AR devices.
04.2014 - 01.2016	*Athens University of Economics and Business, Dept. of Informatics, Greece* ***Postdoc Researcher*** *GLIDE: Goal-driven Lighting for Dynamic 3D Environments* Project coordinator & management. Research and development of real-time multi-fragment methods with applications on realistic global illumination effects.
03.2014 - 03.2014 **09.2010 - 11.2013** **07.2008 - 08.2008** **10.2007 - 12.2007**	*The Ioannina University, Dept. of Computer Science & Engineering, Greece* ***Postdoc Researcher*** *Epirus On Androids* Dissemination, communication, community building and exploitation. ***Doctoral Researcher*** *Heraclitus II* Technical contribution to the field of photorealistic rendering, processing and visualization of large, animated and complex 3D data. ***Master Researcher*** *AEOLUS: Algorithmic Principles for Building Efficient Overlay Computers* *Georouting: Placing and Routing in VLSI using Geometric Constraints* Research and development.
03.2012 - 06.2012	*University of Cyprus, Dept. of Computer Science, Cyprus* ***Doctoral Researcher*** *LLP/ERASMUS practical training program on applied research in Computer Graphics* Research and development on crowd animation systems.
02.2009 - 10.2009 **12.2007 - 03.2008**	*The Aegean University, Dept. of Prod. & Systems Design Engineering, Greece* ***Research Associate*** *A New Parametric CAD system for the Reconstruction of Traditional Jewellery* Implementation of advanced 3D mesh segmentation algorithms. Development of point cloud rendering system for 3D CAD models. Porting triangulation and normal estimation procedures on the graphics hardware.

Book Chapters
N. Vitsas, A. Gkaravelis, **A. A. Vasilakis**, G. Papaioannou, *WebRays: Ray Tracing on the Web*, Ray Tracing Gems II, ch. 18, 281-299, August, 2021. DOI: 10.1007/978-1-4842-7185-8_18

Journals
A. A. Vasilakis, N. Vitsas, G. Papaioannou, A. Gkaravelis, *Remote Teaching Advanced Rendering Topics using the Rayground Platform,* IEEE Computer Graphics & Applications, Volume 41, Issue 5, 99-103, September, 2021. DOI: 10.1109/MCG.2021.3093734
I. Evangelou, G. Papaioannou, K. Vardis, **A. A. Vasilakis,** *Fast Radius Search Exploiting Ray Tracing Frameworks*, Journal of Computer Graphics Techniques (JCGT), vol. 10, no. 1, 25-48, 2021. URL: http://jcgt.org/published/0010/01/02/
I. Evangelou, G. Papaioannou, K. Vardis, **A. A. Vasilakis,** *Rasterization-based Progressive Photon Mapping*, The Visual Computer (Proceedings of CGI 2020), July, 2020. DOI: 10.1007/s00371-020-01897-3
A. A. Vasilakis, K. Vardis, G. Papaioannou, *A Survey of Multifragment Rendering*, Computer Graphics Forum (proc. Eurographics 2020, STAR), 39(2), pages 623-642, May 2020. DOI: 10.1111/cgf.14019
N. Vitsas, G. Papaioannou, A. Gkaravelis, **A. A. Vasilakis**, *Illumination-Guided Furniture Layout Optimization,* Computer Graphics Forum (proc. Eurographics 2020), 39(2), pages 291-301, May, 2020. DOI: 10.1111/cgf.13930

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, 06/2013. 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 45.2 (2013): 288-300. 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

Conferences
K. Vardis, **A. A. Vasilakis** and G. Papaioannou, *Illumination-driven Light Probe Placement*, Eurographics 2021 (Posters), Vienna, Austria, May 3–7, 2021. DOI: 10.2312/egp.20211026
N. Vitsas, A. Gkaravelis, **A. A. Vasilakis**, K. Vardis, G. Papaioannou, *Rayground: An Online Educational Tool for Ray Tracing*, Proc. of Eurographics 2020 - Education Papers, pages 01-08, May 25-29, 2020. DOI: 10.2312/eged.20201027
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 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, *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, *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.
A. A. Vasilakis and I. Fudos, *Skeleton-based Rigid Skinning for Character Animation*, In Proceedings of the Fourth International Conference on Computer Graphics Theory and Applications (GRAPP '09), pages 302-308, Lisbon, Portugal, February 5-8, 2009.

Technical Reports
A. A. Vasilakis, V. Vassalos, *Report on Recent Information Visualization Research with Applications on Financial Data*, October 2019.
A. Gkaravelis, C. Kalampokis, G. Papaioannou, K. Vardis, and **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.

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

Scholarships/Awards	
2020-2021	*Dept. of Computer Science & Engineering, The Ioannina University, Greece* - ***NSRF Scholarship***: Acquisition of Academic Teaching Experience for New Scientists *(13.310,00 €)* *Dept. of Informatics, Athens University of Economics and Business, Greece* - ***NSRF Scholarship***: *Supporting researchers with emphasis on young researchers - Cycle B (19.500,00 € - acc. rate: 33%)* - ***Ennovation Competition****: 1st Research & Technology Innovation Award (2.00,00 € - acc. rate: 3%))*
2021 **2014** **2013**	*Eurographics* - ***Best poster award*** *for "Illumination-driven Light Probe Placement"* *ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games* - ***Best paper award*** *for "k +-buffer: Fragment Synchronized k-buffer"* - ***ACM Stipend grant*** *(350,00 $)*
2010 - 2013 **2006 - 2007** **2006**	*Dept. of Computer Science, The Ioannina University, Greece* - ***Heraclitus II Scholarship*** *(45.000,00 € - acc. rate: 34%)* - ***EPEAEK grant*** *from the University of Ioannina (1.000,00 €)* - ***Highest graduate grade*** *in my class*

Academic Activities		**Role**
10.2020 - 02.2021 **02.2020 - 06.2021**	*Dept. of Computer Science & Engineering, The Ioannina University* *- Advanced Computer Graphics* *- Virtual, Augmented, Mixed Reality*	Adjunct Professor
04.2020 - 06.2020 **03.2021 - 06.2021**	*Dept. of Informatics, Athens University of Economics & Business, Greece* *- Interaction Design & Multimedia, MSc in Digital Humanities*	Adjunct Professor
09.2008 - 01.2013 **09.2007 - 01.2008** **09.2006 - 01.2007** **02.2005 - 07.2006**	*Dept. of Computer Science, The Ioannina University, Greece* *- Computer Graphics* *- Computer Architecture* *- Artificial Intelligence* *- Operating Systems*	Teaching Assistant

Memberships	Reviewing Activities
Khronos Group, ACM, EG, Hellenic Informatics Union, ACM Greek SIGCHI	**Journals:** Computers & Graphics, Graphics & Visual Computing, JCGT, CGI, GRAPP, IEEE VIS, Eurographics **Research & Innovation:** H.R.F.I.

Research Grants		Funded by	Role
04.2021 - 06.2021	Rayground, an online tool for rapid prototyping of ray tracing algorithms	Epic Megagrants	Senior Researcher
10.2020 - 06.2021	Acquisition of Academic Teaching Experience for New Scientists	NSRF 2014-2020	Adjunct Professor
03.2020 - 06.2021	*LumiBricks*	NSRF 2014-2020	Postdoc Researcher
12.2019 - 12.2019	*Proof-of-concept implementation of coarse shading technologies for the ARM Mali-G76 Bifrost architecture*	Huawei	Postdoc R&D
04.2019 - 10.2019	*Big Data Visualization for Transaction Data*	NBG	Postdoc Researcher
10.2017 - 05.2018	*LPGPU2*	H2020-EU.2.1.1.	Computer Graphics R&D
06.2018 - 11.2018	*GPU-WEAR*	H2020-EU.2.1.1. H2020-EU.2.3.1	
02.2016 - 10.2017	*FRAILSAFE*	H2020-EU.3.1.4	Postdoc Researcher
11.2015 - 01.2016	*PRESIOUS*	FP7-ICT	
04.2014 - 10.2015	*GLIDE*	ARISTEIA II	
03.2014 - 03.2014	*Epirus On Androids*	ERDF	
10.2013 - 02.2014	CA.V.E.	Interreg	
09.2010 - 11.2013	*Heraclitus II*	GSRT	Doctoral Researcher
03.2012 - 06.2012	*LLP/ERASMUS practical training program*	Erasmus+	
07.2008 - 08.2008 **10.2007 - 12.2007** **02.2009 - 10.2009** **12.2007 - 03.2008**	*AEOLUS* *Georouting* *A New Parametric CAD system for the Reconstruction of Traditional Jewellery*	FP6-ICT PYTHAGORAS ELKA	Master Researcher

Scientific Achievements

Synopsis of research. A major part of my research is focused on various techniques and algorithms for *geometry processing* and *interactive rendering* of arbitrary mesh animations. My work has been published in high-ranking journals (IEEE TVCG, CGF, etc.) and leading international conferences (SIGGRAPH, EG, I3D, etc.) with peer review offering strong technical contribution to the field of photorealistic rendering, processing and visualization of large, animated and complex 3D data.

Geometry Processing. Within this extensive area, my work mainly covered two significant problems; (i) *compression* and (ii) *segmentation* of deformable meshes. The novelty of my research is inspired by the observation that only small deformation variations will normally occur between consecutive poses. By exploiting temporal coherence, my work offers novel approaches to support fast and efficient lossy compression (in terms of PCA and skinning), editing as well as segmentation of high-deformable animations ideally suited for real-time scenarios. Building on this experience, my goal is to further research interactive methods for processing of dynamic geometry data generated via scanning operations, content-creation tools and physical-based simulators.

Interactive rendering. Visibility determination is a standard stage in developing numerous appealing and plausible visual effects for interactive 3D games and graphics applications. Capturing multiple fragment samples efficiently on the GPU is a challenging task in terms of time, memory and robustness. My work studied the multi-fragment rendering problem from various perspectives and alternatives for reducing fragment-contention, avoiding fragment-overflow as well as eliminating z-fighting artifacts. Last but not least, my work was further extended to support interactive global illumination techniques via complete multi-fragment ray tracing solutions. My future research focuses on different aspects of interactive rendering with applications on global illumination and image-based techniques for interior visualization on VR/AR platforms, while expanding and blending with other domains and mathematical foundations (machine learning) to broaden the computer graphics tools and algorithms.