

# KOSTAS VARDIS

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**Profession** Computer Scientist (BSc, MSc, PhD)  
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**Web** [kostasvardis.com](http://kostasvardis.com)  
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**Google Scholar** [scholar.google.gr](https://scholar.google.gr)

**Location** Athens, Greece  
**Military Obligations** Fullfilled (11/2010 - 07/2011)

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## Professional Experience

- 2019 - now** **Athens University of Economics and Business**  
*Postdoctoral Researcher/Developer at [AUEB Computer Graphics Group](#)*  
Research and development on interactive rendering and illumination algorithms.  
Projects:  
- Lumibricks (2020-2021)  
Modular Illumination Transfer for Photorealistic Visualization on Commodity Hardware  
15-month research program co-funded by the European Union and Greek National Funds.  
- Interactive Photorealistic Image Synthesis (2020)  
12-month research program funded by the AUEB Research Center.  
**Technologies:** C++, Java, OpenGL, WebGL, CUDA, etc.
- 2020 - now** **Neuropublic S.A.**  
*Software Engineer - Contract*  
Software development on the extraction, analysis and manipulation of satellite imagery (visible, invisible spectrum and radar).  
**Technologies:** C++, Python, GDAL, etc.
- 2018** **Think Silicon**  
*Senior Software Engineer*  
Development of drivers and software tools of ultra-low power GPUs.  
Research Projects:  
- [GPU-WEAR](#) (2016-2018)  
Ultra-low power heterogeneous GPUs for Wearable/IoT devices.  
EU-funded H2020 project (GID: 717850).  
Main task: R&D on the open-source software [GLOVE \(GL Over Vulkan\)](#).  
**Technologies:** C, C++, OpenGL ES, EGL, Vulkan
- 2016 - 2018** **Athens University of Economics and Business**  
*Postdoctoral Researcher/Developer at [AUEB Computer Graphics Group](#)*  
Research and development on interactive rendering and illumination algorithms.  
Projects:  
- Visualization Engine for the CostOS software of [Nomitech Ltd.](#) (2016-2017)  
Research, design and development of a high-performance, real-time visualization solution for large-volume 3D datasets.  
Position: Senior researcher/developer  
**Technologies:** C++, C#, OpenGL, WebGL, CUDA, Qt, etc.

- 2011 - 2016**    **Athens University of Economics and Business**  
*Doctoral Researcher/Developer at [AUEB Computer Graphics Group](#)*  
Research and development on interactive rendering and illumination algorithms.  
Projects:  
- [GLIDE](#) (2014-2015)  
Goal-driven Lighting for Dynamic 3D Environments (ARISTEIA II programme).  
18-month research project co-funded by the General Secretariat of Research and Technology and the European Union.  
Position: Researcher/developer  
- [PRESIOUS](#) (2013-2016)  
Predictive digitization, restoration and degradation assessment of cultural heritage objects.  
3-year EU-funded STREP project (GID: 600533).  
Position: Researcher/lead developer for Computer Graphics AUEB Group  
**Technologies:** C++, C#, OpenGL, WebGL, CUDA, Qt, etc.
- 2008 - 2013**    **Oraton Simulation Intelligence Technologies**  
*Senior Software Engineer – Contract*  
Development of desktop- and web-based systems for map data visualization in the private and public sector.  
**Technologies:** C#, ASP.NET, PHP, Javascript, Silverlight, etc.
- 2008 - 2009**    **Evorad**  
*Graphics and Medical Visualization Software Engineer*  
Development of GPU- and GPGPU-based software for the visualization of 3D medical images. Technical direction in 3D Graphics.  
**Technologies:** Java, OpenGL, CUDA
- 2006 - 2008**    **SEGA – The Creative Assembly**  
*Programmer*  
Graphics Engine and UI Programmer on Empire: Total War (released in March 2009).  
**Technologies:** C++, DirectX, SpeedTree, Lua

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## Selected Personal and Freelance Projects

- 2010**            **TMS - Tailor-made Medical Software**  
A client-server medical support application designed to present experts with quick and informative data of their patients on a mobile platform.  
**Technologies:** Objective-C
- 2009 - 2011**    **Ingame FMScout/FM Assistant**  
Real-time scouting and editing utility for Sports Interactive's Football Manager 2009-2011.  
**Technologies:** C#

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## Research

- [1] I. Evangelou, G. Papaioannou, **K. Vardis**, and A. A. Vasilakis, "Rasterisation-based Progressive Photon Mapping," *The Visual Computer*, Jul. 2020.  
URL: <https://doi.org/10.1007/s00371-020-01897-3>.
- [2] A. A. Vasilakis\*, **K. Vardis\***, and G. Papaioannou, "A Survey of Multifragment Rendering," *Computer Graphics Forum*, 2020 (\*these authors contributed equally to this work).  
URL: <https://diglib.org/handle/10.1111/cgf14019>,  
Presented in: *Eurographics 2020*. Norrköping, Sweden.

- [3] N. Vitsas, A. Gkaravelis, A. A. Vasilakis, **K. Vardis**, and G. Papaioannou, "Rayground: An Online Educational Tool for Ray Tracing," in *Eurographics 2020 - Education Papers*, M. Romero and B. Sousa Santos, Eds., The Eurographics Association, 2020.  
URL: <https://diglib.org/handle/10.2312/eged20201027>.
- [4] A. A. Vasilakis\*, **K. Vardis\***, G. Papaioannou\*, and K. Moustakas, "**Variable  $k$ -Buffer using Importance Maps**," in *EG 2017 - Short Papers*, A. Peytavie and C. Bosch, Eds., The Eurographics Association, 2017 (\*these authors contributed equally to this work).  
URL: <https://diglib.org/handle/10.2312/egsh20171005>.
- [5] G. Papaioannou, T. Schreck, A. Andreadis, P. Mavridis, R. Gregor, I. Sipiran, and **K. Vardis**, "**From Reassembly to Object Completion: A Complete Systems Pipeline**," *Journal on Computing and Cultural Heritage*, vol. 10, no. 2, 8:1–8:22, Mar. 2017.  
URL: <http://doi.acm.org/10.1145/3009905>.
- [6] **K. Vardis**, "**Efficient Illumination Algorithms for Global Illumination In Interactive and Real-Time Rendering**," Ph.D. dissertation, Department of Informatics, Athens University of Economics and Business, 2016.  
URL: <http://hdl.handle.net/10442/hedi/41947>.
- [7] **K. Vardis**, A. A. Vasilakis, and G. Papaioannou, "**DIRT: Deferred Image-based Ray Tracing**," in *Eurographics/ ACM SIGGRAPH Symposium on High Performance Graphics*, Dublin, Ireland: The Eurographics Association, 2016.  
URL: <https://diglib.org/handle/10.2312/hpg20161193>.
- [8] **K. Vardis**, A. A. Vasilakis, and G. Papaioannou, "**A Multiview and Multilayer Approach for Interactive Ray Tracing**," in *Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*, ser. I3D '16, Redmond, Washington: ACM, 2016.  
URL: <http://doi.acm.org/10.1145/2856400.2856401>.
- [9] **K. Vardis**, G. Papaioannou, and A. Gkaravelis, "**Real-time Radiance Caching using Chrominance Compression**," *Journal of Computer Graphics Techniques (JCGT)*, Dec. 2014.  
URL: <http://jcgt.org/published/0003/04/06>,  
Presented in: *Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*. I3D'15. San Francisco, California.
- [10] A. Gkaravelis\*, C. Kalampokis\*, G. Papaioannou\*, **K. Vardis\***, and A. A. Vasilakis\*, "**STAR on Interactive Global Illumination Techniques and Inverse Lighting Problems**," Athens University of Economics and Business, Tech. Rep., Aug. 2014 (\*authors listed in alphabetical order), GLIDE: Goal-driven Lighting for Dynamic 3D Environments, Deliverable 1.1.  
URL: <http://graphics.cs.aueb.gr/graphics/docs/GLIDE-D1.1.pdf>.
- [11] **K. Vardis**, G. Papaioannou, and A. Gaitatzes, "**Multi-view Ambient Occlusion with Importance Sampling**," in *Proceedings of the ACM SIGGRAPH Symposium on Interactive 3D Graphics and Games*, ser. I3D '13, Orlando, Florida: ACM, 2013.  
URL: <http://doi.acm.org/10.1145/2448196.2448214>.

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## Teaching Experience

2012 - 2015	<b>Athens University of Economics and Business</b>		
	Teaching Assistant - Computer Science BSc		
	Computer Graphics	Winter semester	4th year course
	Databases	Eastern semester	2nd year course

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## Research Interests

Interactive graphics, rendering techniques, illumination algorithms

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## Reviewer

[Eurographics, High-Performance Graphics \(HPG\)](#)

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## Education

- 2011 - 2016    **PhD in Computer Graphics**  
Athens University of Economics and Business, Greece. Advisor: Prof. G. Papaioannou
- 2004 - 2005    **MSc in Virtual Environments and Visualization**  
University of Hull, UK
- 2001 - 2004    **BSc (Hons) in Computer Science**  
University of Sussex, UK

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## Languages

- Greek*    Native
- English*    Fluent
- French*    Elementary