

KOSTAS VARDIS

Profession	Computer Scientist (BSc, MSc, PhD)
E-mail	kvardis@hotmail.com
Web	kostasvardis.com
GitHub	github.com/kvarcg
GitLab	gitlab.com/kvarcg
Google Scholar	scholar.google.gr
Location	Athens, Greece
Military Obligations	Fullfilled (11/2010 - 07/2011)

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.
- Proof-of-concept implementation of coarse shading technologies for the ARM Mali-G76 Bifrost architecture (2019)
Technologies: C++, Java, OpenGL, WebGL, CUDA, etc.
- 2020 - 2022** **NeuroPublic S.A.**
Software Engineer - Contract
Software development and machine learning on the extraction, analysis and manipulation of satellite imagery (visible, invisible spectrum and radar).
Technologies: C++, Python, GDAL, TensorFlow, 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

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#

Research

- [1] N. Vitsas, K. Vardis, and G. Papaioannou, "Sampling Clear Sky Models using Truncated Gaussian Mixtures," in *Eurographics Symposium on Rendering - DL-only Track*, A. Bousseau and M. McGuire, Eds., The Eurographics Association, 2021, ISBN: 978-3-03868-157-1.
URL: <https://diglib.org/handle/10.2312/sr20211288>.

- [2] **K. Vardis**, A. A. Vasilakis, and G. Papaioannou, “**Illumination-driven Light Probe Placement**,” in *Eurographics 2021 - Posters*, J. Bittner and M. Waldner, Eds., The Eurographics Association, 2021, ISBN: 978-3-03868-134-2.
URL: <https://diglib.eg.org/handle/10.2312/egp20211026>.
- [3] I. Evangelou, G. Papaioannou, **K. Vardis**, and A. A. Vasilakis, “**Fast Radius Search Exploiting Ray Tracing Frameworks**,” *Journal of Computer Graphics Techniques (JCGT)*, vol. 10, no. 1, pp. 25–48, Feb. 2021, ISSN: 2331-7418.
URL: <http://jcgt.org/published/0010/01/02/>.
- [4] 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>.
- [5] 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.eg.org/handle/10.1111/cgf14019>,
Presented in: *Eurographics 2020*. Norrköping, Sweden.
- [6] 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.eg.org/handle/10.2312/eged20201027>.
- [7] 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.eg.org/handle/10.2312/egsh20171005>.
- [8] 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>.
- [9] **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>.
- [10] **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.eg.org/handle/10.2312/hpg20161193>.
- [11] **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>.
- [12] **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.
- [13] 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>.
- [14] **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>.

Teaching Experience

2012 - 2015 **Athens University of Economics and Business**
Teaching Assistant - Computer Science BSc

Computer Graphics	Winter semester	4th year course
Databases	Eastern semester	2nd year course

Research Interests

Interactive graphics, rendering techniques, illumination algorithms

Reviewer

[SIGGRAPH](#), [Eurographics](#), [High-Performance Graphics](#) (also part of [IPC 2021](#))

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

Languages

Greek Native
English Fluent
French Elementary