

Dr. George Papagiannakis

Civil status:	Married with two children
Nationality:	Greek
Birth date/place:	13/11/1976, Athens, Greece
w.w.w.:	http://www.csd.uoc.gr/~papagian
Department of Computer Science University of Crete, Voutes Campus 70013 Heraklion, Crete, Greece	Human Computer Interaction Laboratory, Institute of Computer Science, Foundation for Research & Technology - Hellas (FORTH) 100 N. Plastira str., GR 700 13 Heraklion, Crete, Greece
email: papagian (at) csd (dot) uoc (dot) gr	email: papagian (at) ics (dot) forth (dot) gr
tel.: +30 2810 39 3548	tel.: +30 2811 392715

Executive Summary



<https://scholar.google.com/citations?user=rUfy13MAAAAJ&hl=en>



<https://www.linkedin.com/in/george-papagiannakis-49b22617>



<https://twitter.com/gpapagian76>



<https://bsky.app/profile/rethemnos76.bsky.social>



<https://george-papagiannakis.medium.com/>



<https://www.youtube.com/channel/UCOFj6n6leusw4UITSHE9SQ>



<https://github.com/papagiannakis>



Dr. George Papagiannakis is a distinguished computer scientist and Marie Skłodowska-Curie Fellow, specializing in computer/neural graphics systems, extended reality (XR) algorithms, and geometric computational models with applications in intelligent human-computer interaction (HCI). He holds a PhD (Hons) in Computer Science from the University of Geneva. Currently, he is a full professor at the University of Crete, associated faculty & deputy director of the FORTH-ICS Human-Computer Interaction Lab as well as visiting professor of computer science at the University of Geneva.

Dr. Papagiannakis co-founded ORamaVR, a leading medical XR startup, serving as its CEO/CTO, and is renowned for advancing generative AI, psychomotor learning, and neurosymbolic AI models for intelligent HCI. His innovations include the MAGES SDK XR training & education platform as well as the award-winning pyGANDALF and LIFEPLUS frameworks. As an active leader in the field, he has organized conferences like CGI'16, co-founded the ENGAGE Workshop, and contributed extensively as Section Editor to the Springer AACA, Visual Computer Journal and Frontiers in Virtual Reality journals.

Dr. Papagiannakis' work bridges HCI, AI, and XR, focusing on human-centered design for healthcare, education, and cultural heritage. He actively mentors postdocs, graduate and undergraduate students, shaping the next generation of AI and HCI researchers, while disseminating his impactful research through numerous invited and keynote talks worldwide. He integrates neurosymbolic AI and geometric algebra frameworks to address HCI challenges in the fields of XR healthcare, education, and cultural heritage.

Key Achievements and Highlights include:

- 130+ Scientific Publications (including a Springer-Nature Book: Mixed Reality and Gamification with 100,000+ downloads), 3400+ Citations, h-index: 30
- €8M+ in research funding as PI across 20+ projects including an "NVIDIA Academic Grant (2025) for transformer-based AI in XR" and a Marie Skłodowska-Curie (MSCA) Fellowship by the European Research Executive Agency (2011)
- Led the development of the MAGES SDK, the leading XR training platform for medical professionals employed in more than 200 organizations worldwide by 2024.
- Pioneered pyGANDALF, a Python-based system for teaching HCI and CG concepts, receiving the Best Education paper award at SIGGRAPH ASIA 2024
- Co-authored the position paper of Computational Medical XR together with 10 leading institutions worldwide and 15 experts at the intersection of HCI, Medicine, AI and XR
- Co-Created LIFEPLUS VHD++, the first life-size AR character simulation framework for HCI, employed on the site of ancient Pompeii, Italy in 2002
- Established Geometric algebra as an HCI enabling technology for neurosymbolic AI and networked computer graphics simulation in 5G and 6G XR environments
- 15 Awards, including 4 Best paper awards and an Epic-games Mega-grant award
- 70+ invited/keynote talks worldwide
- Supervised/Co-supervised 4 post-doc, 15 PhD, 34 MSc and 38 BSc students
- 6 journals Editor, 6 funding agencies Evaluator, 13+ Conferences/Workshops Co/Chair

Extended Summary

Dr. George Papagiannakis obtained his PhD (Hons) in Computer Science from the University of Geneva, Switzerland in 2006, his M.Sc. (Hons) in Advanced Computing from the University of Bristol, UK and his B.Eng. (Hons) in Computer Systems Engineering, from the University of Manchester, UK.

He is currently full professor at the Computer Science department of the University of Crete, Greece, MSCA Fellow, associated faculty member and deputy director of the FORTH-ICS Human Computer Interaction Lab and visiting professor at the University of Geneva. Prior to these posts, he was lecturer, senior researcher and research assistant at MIRALab, University of Geneva with Prof. Nadia Magnenat-Thalmann. In 2016 he co-founded ORamaVR, a deep-technology spatial intelligence medical XR startup with the mission to accelerate world's transition to computational medical extended reality. He is currently also leading ORamaVR as CEO/CTO today, ranked second in the world in Innovation and third in Growth, amongst 70+ similar companies according to the 2023 Frost & Sullivan Medical VR in education and training report.



His research and development interests are centered in the field of high-fidelity interactive computer and neural graphics systems for intelligent human-computer interaction, embodied AI, psychomotor learning and gamification with virtual human simulation algorithms in extended reality, based on geometric algebra and neurosymbolic AI models. He has more than 130 publications in the field, over 3400 citations and h-index 30. He is a board member of the Computer Graphics Society (CGS) and member of the IEEE, ACM, Eurographics and SIGGRAPH professional societies. He is associate editor of the Springer Visual Computer Journal, research topic lead editor of the Frontiers in Virtual Reality Journal and evaluator/reviewer for the European Commission and several National Research Funding agencies worldwide.

In 2011 he has been awarded the Marie Skłodowska-Curie Intra-European Action (MSCA) Fellowship for Career Development from the European Commission's Research Executive Agency. In 2016 he served as Conference Chair of the Computer Graphics International (CGI'16) annual conference (one of the leading and oldest computer graphics conferences) and in 2020 as programme co-chair. Under the auspices of CGI and CGS he co-founded in 2016 the ENGAGE Workshop: Empowering Novel Geometric Algebra for Graphics and Engineering, running annually ever since. In 2017 he published a Springer-Nature book on Mixed Reality and Gamification which achieved more than 100.000 downloads so far. In 2024 he was visiting Professor at the Stanford Center for Digital Health at Stanford University.

He is currently supervising 1 post-doc, 5 PhD, 3 MSc and two BSc final-year students. His pioneering R&D work has attracted direct contribution of more than €8,3M EU/Swiss/industrial funding, coordinated/contributed more than 26 EU and national R&D funded projects and disseminated his work in more than 70 invited/keynote talks worldwide. He has won several Best Paper awards, including Best Education Paper award at ACM SIGGRAPH ASIA 2024. In 2024 he was also awarded an NVIDIA Academic Grant Program on Generative AI and Large Language Models for "Low-Polygon 3D Mesh Generation from Text Descriptions and Images using Transformer Models".

In 2025 he has been invited to participate in the prestigious, invitation-only "Dagstuhl Seminars" meeting on "Addressing Future Challenges of Telemedicine Applications" in Germany as well as in the "Shonan Meeting" on "The Power of Geometric Algebra in Modern Computer Vision" in Japan.

Research & Professional Experience

[January 2020 – onwards] *University of Geneva, Switzerland*

Visiting Professor of Computer Science

- **Research & Development** in real-time 3D computer graphics, HCI, mixed reality, gamification, presence, collaborative networked VR for psychomotor medical training simulation, geometric algebra models for computer graphics

[August 2016 – now] *ORamaVR SA Switzerland & ORamaVR SA Greece*

Co-founder and CEO/CTO in FORTH's computational medical XR spin-off, startup company

- **Research & Development innovation** in real-time interactive 3D computer graphics systems, geometric algebra, extended reality, gamification, presence, GPU programming for psychomotor medical training simulation
- **Scientific Coordinator** of VRADA and **Principal Investigator** on the OMEN-E, Indux-R, FIDAL, Charity, 5G-Epicentre, Accordion, STARS EU, Swiss R&D projects as well as vipGPU, VRADA, Revires-MED National ESPA and other R&D projects

[August 2011 – now] *University of Crete, Computer Science Department, Heraklion, Greece*

Professor of Computer Graphics Systems with applications in Human Computer Interaction

- **Teaching and Research** in real-time 3D computer graphics, extended reality, GPU programming, geometric algebra, HCI, geometric computational models; **Supervision** of PhD, MSc and BSc students
- **Elected as Full Prof.**, December 2021
- **Elected as Assoc. Prof.**, May 2017
- **Tenured as Assist. Prof.**, January 2015
- **Appointed as tenure-track Assist. Prof.**, August 2011

[April 2011 – now] *Foundation for Research and Technology Hellas, Institute of Computer Science, Greece*

MSCA Fellow, Associated Faculty Member and Deputy Director of FORTH-ICS Human-Computer Interaction Lab

- **Research** in high-fidelity interactive computer graphics systems, presence, gamification, geometric algebra and interaction in extended reality using computer graphics algorithms, HCI
- **Principal Investigator** of the UViMCA, ITN-DCH, ViMM EU projects, **Marie Skłodowska-Curie Action (MSCA) Fellow** in the HiFi-PRINTER IEF EU project, **Affiliated research Fellow** in the RealEstate 2.0, TIMESTORM and Aml EU R&D projects
- **Deputy director of FORTH-ICS HCI-Lab (2022 - now)**
- **Member of the FORTH-ICS scientific council (2024 - now)**

[August 2024 – December 2024] *Stanford University, USA*

Visiting Professor of Computer Science at the Stanford Center for Digital Health (CDH)

- **Research & Development** in human-computer interaction for computational medical XR and Neurosymbolic AI

[September 2010 – March 2011] *3DTouch S.A.R.L Geneva, Switzerland*

Lead Graphics Programmer

- **Industrial applied Research** in real-time game engine utilization for rapid prototyping, architectural pre-visualization, urban planning, presence and interaction
- **3D Game Application Development** of commercial computer graphics applications utilizing latest game engines (Unigine), C++, GLSL and scripting languages (UnigineScript), linear and non-linear event mechanisms, interactive simulation and animation of dynamic 3D objects and scripted camera view paths

[June 2006 – December 2009] *MIRALab-University of Geneva, Switzerland*

Senior Researcher

- **Post-doc** researcher on real-time computer graphics, carrying out research and development in illumination & animation models and real-time VR / AR simulations of dynamic 3D scenes
- **Lecturer** for the “Simulating body and face”, MSc Course 4304045, Jan 2007 – Sept 2007

- **Deputy Coordinator** of the INTERMEDIA EU funded NoE R&D project. **Contributor** on INDIGO, EPOCH FP6 EU funded R&D projects.
- **Co-author** of new EU project proposals. **Co-supervisor** of master and PhD student contributions.
- **Publishing** research results in international refereed scientific journals and conferences

[November 1999 – June 2006] *MIRALab-University of Geneva, Switzerland*

Research Assistant

- **Full-time researcher**, team-leader, author, contributor and deputy representative of EU IST and INCO-MED research projects publishing research results in international refereed scientific journals and conferences in the research domains of: 3D simulation of virtual humans (CAHRISMA FP5 Project), GPU programming, illumination-rendering (ERATO FP5 Project), virtual heritage (LIFEPLUS FP5 Project), VR and AR interaction (JUST, STAR FP5 projects).
- **Co-author** of new EU project proposals.
- **Publishing** research results in international refereed scientific journals and conferences

Education

[January 2002 – June 2006] *University of Geneva, Switzerland*

PhD (with Honors) in Computer Science

- “An illumination registration model for dynamic virtual humans in mixed reality”, Faculty of Sciences, Department of Informatics, Thesis Director: Prof. Nadia Magnenat-Thalmann

[October 1998 - October 1999] *University of Bristol, UK*

MSc (with Honors) in Global Computing and Multimedia (Advanced Computing)

- “Virtual Reality visualization of the reconstruction of an ancient Greek residence”, Computer Science Department, Thesis Director: Prof. Alan Chalmers

[September 1995 - June 1998] *University of Manchester, UK*

Bachelor of Engineering (with Honors) in Computer Systems Engineering

- Upper Second-class Honors degree (2.1), Department of Electrical and Electronic Engineering
Final Year BSc project Director: Prof. Michael Turega

Research Interests

Human-Centered AI-based HCI:

- *Neurosymbolic AI for interactive and adaptive interfaces.*
- *Generative AI for authoring XR environments.*

Geometric Algebra for networked computer graphics and HCI:

- *Neurosymbolic reasoning for LLMs.*
- *Geometric algebra networked character simulation algorithms.*

Interactive Computer Graphics systems:

- *GPU-based scientific visualization systems.*
- *Entity-Component-systems and scenegraph frameworks for gamified HCI.*

Healthcare & Education XR:

- *Immersive medical XR systems for psychomotor skill training.*
- *Adaptive AI models for patient rehabilitation and education.*

Digital Cultural Heritage:

- *XR for digital preservation and gamified storytelling.*
- *AI-driven XR reconstructions of historical sites, artifacts in tangible and intangible cultural heritage.*

Key Publications

Books

- B1. Ioannides, M., Magnenat-Thalmann, N., **Papagiannakis, G.**, (Eds), Mixed Reality and Gamification for Cultural Heritage, Springer-Nature, DOI: 10.1007/978-3-319-49607-8, 2017
- B2. Magnenat-Thalmann, N., Stephanidis, C., Wu, E., Thalmann, D., Sheng, B., Kim, J., **Papagiannakis, G.**, Gavrilova, M., (Eds), Advances in Computer Graphics - 37th Computer Graphics International Conference, CGI 2020, Geneva, Switzerland, October 20-23, 2020, Proceedings. Lecture Notes in Computer Science 12221, Springer, ISBN 978-3-030-61863-6, 2020
- B3. Magnenat-Thalmann, N., Interrante, V., Thalmann, D., **Papagiannakis, G.**, Sheng, B., Kim, J., Gavrilova, M., (Eds), Advances in Computer Graphics - 38th Computer Graphics International Conference, CGI 2021, Virtual Event, September 6-10, 2021, Proceedings. Lecture Notes in Computer Science, Springer, ISBN 978-3-030-89028-5, 2021
- B4. Magnenat-Thalmann, Zhang, J., Kim, J., V., **Papagiannakis, G.**, Sheng, B., Thalmann, D., Gavrilova, M., (Eds), Advances in Computer Graphics, 39th Computer Graphics International Conference, CGI 2022, Virtual Event, September 12–16, 2022, Proceedings. Lect Notes Comput Sc, doi:10.1007/978-3-031-23473-6, 2022
- B5. Hitzer, E., **Papagiannakis, G.**, Vasik, P., Empowering Novel Geometric Algebra for Graphics and Engineering, 7th International Workshop, ENGAGE 2022, Virtual Event, September 12, 2022, Proceedings. in Lecture Notes in Computer Science, doi: 10.1007/978-3-031-30923-6_6, 2023

Book Chapters

- C1. Vacchetti, L., Lepetit, V., Ponder, M., **Papagiannakis, G.**, Fua, P., Thalmann, D., Magnenat-Thalmann, N., “Stable Real-time AR Framework for Training and Planning in Industrial Environments”, Virtual Reality and Augmented Reality Applications in Manufacturing, Ong, S. K., Nee, A.Y.C. (eds), pp.125-142, ISBN: 1-85233-796-4, Springer-Verlag, 2004
- C2. **Papagiannakis, G.**, Magnenat-Thalmann, N., "Virtual Worlds and Augmented Reality in Cultural Heritage Applications", Recording, Modeling and Visualization of Cultural Heritage - Baltsavias et al. (eds), pp. 419-430, ISBN-10: 041539208X, Taylor & Francis Group, 2006
- C3. Magnenat-Thalmann, N., **Papagiannakis, G.**, Chaudhuri, P., “Applications of Interactive virtual humans in mobile augmented reality”, Encyclopedia of Multimedia (2nd Edition), pp. 362-368, ISBN: 978-0-387-74724-8, Springer, 2008
- C4. Tato, M., Papanikolaou, P., **Papagiannakis, G.** “From Real to Virtual Rapid Architectural Prototyping”, Lecture Notes in Computer Science, Springer-Verlag Berlin Heidelberg 7616, 505–512, also presented in International Conference in Cultural Heritage, Euromed 2012
- C5. **Papagiannakis, G.**, Greassidou, E., Trahanias, P., Tsioumas, M., “A geometric algebra framework for mobile Augmented Reality simulations in digital heritage sites”, Lecture Notes in Computer Science, Springer-Verlag, 2014, also presented in 2014 International Conference in Cultural Heritage (**2nd best-paper award**), Euromed 2014
- C6. Papanikolaou, P., **Papagiannakis, G.**, “Real-time Separable Subsurface Scattering for animated virtual characters”, GPU Computing and Applications, Springer Singapore, 2015, pp. 53-67, also presented in Symposium on GPU Computing and Applications 2013
- C7. Zikas P., Bachlitzanakis V., Papaefthymiou M., **Papagiannakis G.**, “A Mobile, AR Inside-Out Positional Tracking Algorithm, (MARIOPOT), Suitable for Modern, Affordable Cardboard-Style VR HMDs”, In: Ioannides M. et al. (eds) Digital Heritage. Progress in Cultural Heritage: Documentation, Preservation, and Protection, Lecture Notes in Computer Science, vol 10058. Springer, also presented in EuroMed 2016
- C8. Papaefthymiou, M., **Papagiannakis, G.**, “Gamified Augmented and Virtual reality character rendering and animation enabling technologies”, Mixed Reality and Gamification for Cultural Heritage, Ioannides, M., Magnenat-Thalmann, N., Papagiannakis, G. (Eds.), Springer, DOI: 10.1007/978-3-319-49607-8, 2017
- C9. **Papagiannakis, G.**, “Gamification and Serious Games”, N. Lee (Ed.), Encyclopedia of Computer Graphics and Games, Springer International Publishing, DOI: 10.1007/978-3-319-08234-9, 2017
- C10. **Papagiannakis G.**, Geronikolakis, E., Pateraki, M., López-Mencheró, M.V., Tsioumas, M., Sylaiou, S., Liarokapis, F., Grammatikopoulou, A., Dimitropoulos, K., Grammalidis, N., Partarakis, N., Margetis, G., Drossis, G., Vassiliadi, M., Chalmers,

- A., Stephanidis, C., Magnenat-Thalmann, N., "Mixed Reality, Gamified Presence, and Storytelling for Virtual Museums", In: Lee N. (eds) Encyclopedia of Computer Graphics and Games. Springer, Cham, 2018
- C11. **Papagiannakis, G.**, Trahanias, P., Kenanidis, E., and Tsiridis, E., Psychomotor Surgical Training in Virtual Reality. In: The Adult Hip - Master Case Series and Techniques. Springer, Cham, Cham, 827–830, 2018
- C12. Geronikolakis, E., Tsioumas, M., Bertrand, S., Loupas, A., Zikas, P., **Papagiannakis, G.**, "New Cross/Augmented Reality Experiences for the Virtual Museums of the Future", In: Ioannides M. et al. (eds) Digital Heritage. Progress in Cultural Heritage: Documentation, Preservation, and Protection. EuroMed 2018. Lecture Notes in Computer Science, vol 11196. Springer, Cham, 2018, also presented in Euromed 2018
- C13. Baka E., Kentros M., **Papagiannakis G.**, Magnenat-Thalmann N., "Virtual Reality Rehabilitation Based on Neurologic Music Therapy: A Qualitative Preliminary Clinical Study", In: Zaphiris P., Ioannou A. (eds) Learning and Collaboration Technologies. Learning and Teaching. LCT 2018. Lecture Notes in Computer Science, vol 10925. Springer, Cham, 2018, also presented in International Conference on Learning and Collaboration Technologies 2018
- C14. Papaefthymiou M., Kanakis M.E., Geronikolakis E., Nochos A., Zikas P., **Papagiannakis G.**, "Rapid Reconstruction and Simulation of Real Characters in Mixed Reality Environments", In: Ioannides M. (eds) Digital Cultural Heritage. Lecture Notes in Computer Science, vol 10605. Springer, Cham, 2018
- C15. Stefanidi E, Arampatzis D, Leonidis A, **Papagiannakis G.** "BricklAyeR - A Platform for Building Rules for AML Environments in AR". Lecture Notes in Computer Science, volume 11542, also presented in CGI 2019
- C16. Geronikolakis, E., Zikas, P., Kateros, S., Lydatakis, N., Georgiou, S., Kentros, M., **Papagiannakis, G.**, "A True AR Authoring Tool for Interactive Virtual Museums", In: Visual Computing in Cultural Heritage, Liarokapis, F., Voulodimos, A., Doulamis, N., Doulamis, A. (Eds.), Springer-Nature, Series on Cultural Computing, 2020
- C17. Bertrand, S., Vassiliadi, M., **Papagiannakis G.**, "Storytelling in Virtual Reality", In: Lee N. (eds) Encyclopedia of Computer Graphics and Games. Springer, Cham, 2020
- C18. Stefanidi E., Arampatzis D., Leonidis A., Korozi M., Antona M., **Papagiannakis G.**, "MagiPlay: An Augmented Reality Serious Game Allowing Children to Program Intelligent Environments", In: Gavrilova M., Tan C., Chang J., Thalmann N. (eds) Transactions on Computational Science XXXVII. Lecture Notes in Computer Science, vol 12230. Springer, Berlin, Heidelberg. https://doi.org/10.1007/978-3-662-61983-4_9, 2020
- C19. Kamarianakis, M., **Papagiannakis, G.**, "Deform, Cut and Tear a skinned model using Conformal Geometric Algebra", presented also in CGI 2020 conference (ENGAGE workshop), Springer LNCS proceedings, 2020
- C20. Stefanidi, E., Partarakis N., Zabulis, X, Zikas, P., **Papagiannakis, G.**, Thalmann, N.M., "ToolTY: An approach for the combination of motion capture and 3D reconstruction to present tool usage in 3D environments", In Thalmann N.M., Zhang J.J, Jiang X. (eds) Intelligent Scene Modelling and Human Computer Interaction, Springer, 2021
- C21. Kamarianakis, M., Lydatakis, N., **Papagiannakis, G.**, "Never 'Drop the Ball' in the Operating Room: An efficient hand-based VR HMD controller interpolation algorithm, for collaborative, networked virtual environments", presented also in CGI 2021 conference (ENGAGE workshop), Springer LNCS proceedings, 2021 (**best paper award**)
- C22. Gyll, S. P., Shader, K. K., Zikas, P., **Papagiannakis, G.**, "Designing Context-Rich Learning by Extending Reality", Adv Educ Technologies Instr Des 132–160, doi:10.4018/978-1-6684-7644-4.ch008, 2023
- C23. Gyll, S. P., Shader, K. K., Zikas, P., **Papagiannakis, G.**, Designing Context-Rich Learning by Extending Reality. Adv Educ Technologies Instr Des 273–297, doi:10.4018/978-1-6684-7644-4.ch014, 2023
- C24. Kamarianakis, M., Lydatakis, N. & **Papagiannakis, G.**, "GA-Unity: A Production-Ready Unity Package for Seamless Integration of Geometric Algebra in Networked Collaborative Applications", CGI 2024 conference (ENGAGE workshop), Springer LNCS proceedings, 2024 (**best paper award**)
- C25. **Papagiannakis, G.**, Greenleaf, W., Cole, M., Zhang, M., Datta, R., Delahaye, M., Grigoriou, E., Kamarianakis, M., Protopsaltis, A., Bijlenga, P., Magnenat-Thalmann, N., Tsiridis, E., Kenanidis, E., Vamvakidis, K., Koutelidakis, I., and A Kannape, O., "A computational medical XR discipline". presented also in CGI 2024 conference, Springer LNCS proceedings, 2024
- C26. Filippidis, A., Marmaras, N., Maravgakis, M., Plexousaki, A., Kamarianakis, M., Papagiannakis, G., "VR Isle Academy: A VR Digital Twin Approach for Robotic Surgical Skill Development", presented also in CGI 2024 conference, Springer LNCS proceedings, 2024

C27. Protopsaltis, A., Papagiannakis, G. (2024). Virtual Reality: A Model for Understanding Immersive Computing. In: Lee, N. (eds) Encyclopedia of Computer Graphics and Games. Springer, Cham. https://doi.org/10.1007/978-3-031-23161-2_165

Journal publications

- J1. **Papagiannakis, G.**, Schertenleib, S., O’Kennedy, B., Poizat, M., Magnenat-Thalmann, N., Stoddart, A., Thalmann, D., “Mixing Virtual and Real scenes in the site of ancient Pompeii”, *Journal of Computer Animation and Virtual Worlds*, vol. 16, issue 1, John Wiley and Sons Ltd, pp. 11-24, February 2005
- J2. Egges, A., **Papagiannakis, G.**, Magnenat-Thalmann, N., “Presence and Interaction in Mixed Reality Environments”, *The Visual Computer*, Springer-Verlag, Volume 23, Number 5, pp. 317-333, May 2007
- J3. Magnenat-Thalmann, N., Foni, A., **Papagiannakis, G.**, Cadi-Yazli, N., “Real-time Animation and Illumination in Ancient Roman Sites”, *The International Journal of Virtual Reality*, IPI Press, vol. 6, no.1, pp. 11-24, March 2007
- J4. **Papagiannakis, G.**, Magnenat-Thalmann, N., “Mobile Augmented Heritage: Enabling Human Life in Ancient Pompeii”, *The International Journal of Architectural Computing*, Multi-Science Publishing, issue 02, volume 05, pp. 395-415, July 2007
- J5. Foni, A., **Papagiannakis, G.**, Cadi-Yazli, N., Magnenat-Thalmann, N., “Time-Dependent Illumination And Animation Of Virtual Hagia-Sophia”, *International Journal of Architectural Computing*, Multi-Science Publishing, issue 02, volume 05, pp. 284-301, July 2007
- J6. **Papagiannakis, G.**, Singh, G., Magnenat-Thalmann, N., “A survey of mobile and wireless technologies for augmented reality systems”, *Journal of Computer Animation and Virtual Worlds*, John Wiley and Sons Ltd, 19, 1, pp. 3-22, February 2008
- J7. Magnenat-Thalmann, N., Petermier, A., Righetti, Lim, M., **Papagiannakis, G.**, Fragopoulos, T., Lambropoulou, K., Barsocchi, P., Thalmann, D., “A virtual 3D mobile guide in the INTERMEDIA project”, *The Visual Computer*, Springer-Verlag, Volume 24, Numbers 7-9, pp. 827-836, also presented in CGI’08, July 2008
- J8. Chaudhuri, P., **Papagiannakis, G.**, Magnenat-Thalmann, N., “Self-adaptive animation based on user perspective”, *The Visual Computer*, Springer-Verlag, 24(7-9), pp. 525-533, also presented in CGI’08, July 2008
- J9. Magnenat-Thalmann, N., **Papagiannakis, G.**, “Recreating Daily Life in Pompeii”, *VAR-Virtual Archaeology Review*, ISSN 1989-9947, also presented in *Arqueologica 2.0* (2009), vol. 1 (2) pp. 16-20, May 2010
- J10. Foni, A., **Papagiannakis, G.**, N., Magnenat-Thalmann, N., “A Taxonomy of 2D and 3D Visualization Technologies for Cultural Heritage Applications”, *ACM Journal on Computing and Cultural Heritage (JOCCH)*, Volume 3, Issue 1, pp. 1-21, June 2010
- J11. **Papagiannakis, G.**, Greassidou, E., Trahanias, P., Tsioumas, M., “Mixed-reality geometric algebra animation methods for gamified intangible heritage,” *International Journal of Heritage in the Digital Era*, vol. 3, No.4, pp. 683–699, April 2014
- J12. Kateros, S., Georgiou, S., Papaefthymiou, M., **Papagiannakis, G.**, & Tsioumas, M., “A Comparison of Gamified, Immersive VR Curation Methods for Enhanced Presence and Human-Computer Interaction in Digital Humanities”, *International Journal of Heritage in the Digital Era*, 4(2), 221–233. <https://doi.org/10.1260/2047-4970.4.2.221>, 2015
- J13. Papaefthymiou, M., Hildenbrand, D., **Papagiannakis, G.**, “An inclusive Conformal Geometric Algebra GPU animation interpolation and deformation algorithm”, *The Visual Computer Journal*, Springer, 2016, also presented in *Computer Graphics International 2016*, CGI’16, Heraklion, Greece, 2016
- J14. Papaefthymiou M., Hildenbrand D. and **Papagiannakis G.**, “A Conformal Geometric Algebra code generator comparison for Virtual Character Simulation in Mixed Reality”, *Advances in Applied Clifford Algebras Journal*, Springer, also presented in *GACSE’16*, co-located with *Computer Graphics International 2016*, CGI’16, Heraklion, Greece, 2016
- J15. Thalmann, D., Trahanias, P., **Papagiannakis, G.**, “CGI 2016 Editorial (TVCJ)”, *Vis Comput* 32: 675. <https://doi.org/10.1007/s00371-016-1271-7>, 2016
- J16. Argento, E., **Papagiannakis, G.**, Baka, E., Maniadas, M., Trahanias, P., Nestoros, I., “Augmented Cognition via Brainwave Entrainment in Virtual Reality: an open, integrated brain augmentation in a neuroscience system approach”, *Augmented Human Research Journal*, Springer, 2017
- J17. Papaefthymiou, M., **Papagiannakis, G.**, “Real-time rendering under distant illumination with Conformal Geometric Algebra”, *Mathematical Methods in the Applied Sciences*, John Wiley & Sons, 2017
- J18. Aristidou, A., Stavakis, E., Papaefthymiou, M., **Papagiannakis, G.**, Chrysanthou, Y., “Style-based motion analysis for dance composition”, *The Visual Computer*, 34: 1725. <https://doi.org/10.1007/s00371-017-1452-z>, 2017

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- R10. Kamarianakis, M., Lydatakis, N., Protopsaltis, A., Petropoulos, J., Tamiolakis, M., Zikas, P., **Papagiannakis, G.**, ““Deep Cut”: An all-in-one Geometric Algorithm for Unconstrained Cut, Tear and Drill of Soft-bodies in Mobile VR”, arXiv:2108.05281 [cs.GR], 2021
- R11. Kamarianakis, M., Protopsaltis, A., Tamiolakis, M., **Papagiannakis, G.**, “Realistic soft-body tearing under 10ms in VR”, arXiv doi:10.48550/arxiv.2205.00914, 2022
- R12. Chrysovergis, M. Kamarianakis, M. Kentros, D. Angelis, A. Protopsaltis, **Papagiannakis, G.**, “Assessing unconstrained surgical cuttings in VR using CNNs,” Arxiv doi:10.48550/arxiv.2205.00934, 2022
- R13. Kamarianakis, M., Protopsaltis, A., Angelis, D., Zikas, P., Kentros, M., **Papagiannakis, G.**, “UniSG^GA: A 3D scenegraph powered by Geometric Algebra unifying geometry, behavior and GNNs towards generative AI,”, arXiv, doi: 10.48550/arxiv.2306.10621, 2023
- R14. **Papagiannakis, G.**, “A computational medical XR discipline”, *arXiv* doi:10.48550/arxiv.2108.04136v3, 2023
- R15. Kamarianakis, M., Protopsaltis, A., **Papagiannakis, G.**, “AR-Assisted Surgical Care via 5G networks for First Aid Responders”, arXiv doi:10.48550/arxiv.2303.00458, 2023

- R16. Angelis, D., Kolyvakis, P., Kamarianakis, M., **Papagiannakis, G.**, “Geometric Algebra Meets Large Language Models: Instruction-Based Transformations of Separate Meshes in 3D, Interactive and Controllable Scenes”, <https://doi.org/10.48550/arXiv.2408.02275> , 2024
- R17. **Papagiannakis, G.**, Kannape, O., “Computational Medical XR (CMXR): Pioneering the Future of Healthcare Through Computational Medicine and Extended Reality”, SIGGRAPH Asia 2024 Courses 1–67 (2024), doi:10.1145/3680532.3689590, 2024

Dissertations

- D1. **Papagiannakis, G.**, “Virtual Reality Visualization of the Reconstruction of an Ancient Greek Residence”, MSc. Thesis, University of Bristol, June 1999
- D2. **Papagiannakis, G.**, “An Illumination Registration Model for Dynamic Virtual Humans in Mixed Reality”, PhD Thesis (Hons), University of Geneva, Sc. 3795, CUI: libre-accès * classif.: I.3.7 PAP * cote: CUIB 2364, June 2006

Citations to publications

Google Scholar metrics, December 2024

- Number of Citations: 3423
- h-index: 30

Professional Activities

Funded R&D projects at University of Crete & FORTH (Principal Investigator): €815K in total

- Hifi-PRINTER (Marie-Curie IEF: 274669, 01/04/2011-30/03/2014): Principal Marie-Curie Research Fellow Scientist, *EU contribution: 218,000.00 EUR*
- HDRI (COST Action 4208/10, 20/01/2011-15/05/2015): Principal Investigator & member of management committee, *EU contribution: 20,000.00 EUR*
- FORTH-3DTouch S.A., Principal Investigator, s/w development agreement (1/4/12 – 1/7/12), Industrial contribution: *6,000.00 EUR*
- ITN-Digital Cultural Heritage (Marie-Curie ITN 608013, 01/10/2013-01/10/2017): Principal Investigator, *EU Contribution: 310,706.00 EUR*
- ViMM (Horizon2020 CULT-COOP CSA 727107, 01/11/2016-30/04/2019): Principal Investigator, *EU Contribution: 97,500.00 EUR*
- UViMCA (Horizon2020 Marie Curie Fellowship 893454, 18/01/2021-17/01/2023): Principal Investigator, *EU Contribution: 164,558.40 EUR*

Funded R&D projects at ORamaVR (Principal Investigator): €7,560M in total

- ORamaVR FORTH Spin-off Pre-Seed financing 2016: Co-founder/CTO, *PJ Tech Catalyst VC Fund: 575,000 EUR*
- vipGPU (Hellenic Ministry of Economy and Development T1EΔK-01149, Partnership Agreement (PA), 01/04/2018-31/03/2021): Principal Investigator, *EU Contribution: 180,000.00 EUR*
- VRADA (Hellenic Ministry of Economy and Development T1EΔK-01448, Partnership Agreement (PA), 01/04/2018-31/03/2021): Project Scientific Coordinator, *EU Contribution: 120,000.00 EUR*
- STARS (Horizon2020 Public-Private Procurement 727585 Phase1-2, 1/3/19-31/12/20): Principal Investigator, *EU Contribution: 42,600.00 EUR*
- Accordion (Horizon2020 ICT-15-2019-RIA 871793 1/1/2020-31/12/2023): Principal Investigator, *EU Contribution: 256,250.00 EUR*
- ORamaVR Technology Startup spinoff of ICS-FORTH: Co-founder & CEO/CTO, *bridge growth financing round, October 2020: 370,000 EUR*
- CHARITY (Horizon2020 ICT-40-2020-RIA 101016509 1/1/2021-31/12/2024): Principal Investigator, *EU Contribution: 350,000.00 EUR*
- 5G-EPICENTRE (Horizon2020 ICT-41-2020-IA 101016521 1/1/2021-31/12/2024): Principal Investigator, *EU Contribution: 308,437.50 EUR*
- ORamaVR Technology Startup spinoff of ICS-FORTH: Co-founder & CEO/CTO, *bridge growth financing round, April 2022: 250,000 EUR*
- FIDAL (HorizonEurope HORIZON-JU-SNS-2022-STREAM-D-01-01 101096146, 1/1/2023-31/12/2025): Principal Investigator, *EU/SERI Contribution: 414,7500.00 EUR*
- REVIREs-MED (Hellenic Ministry of Economy and Development TΑΣΦP-06378, Partnership Agreement (PA), 01/09/2022-31/08/2024): Project Coordinator, *EU Contribution: 1,755,915 EUR*
- OMEN-E (Innosuisse Swiss Accelerator, PFSA-22-240, 01/05/2023-30/04/2025): Project Coordinator, *Innosuisse Contribution: 2,304,260 CHF*
- Indux-R (HorizonEurope, HORIZON-CL4-2023-HUMAN-01-22, 01/01/2023-31/12/2026): Principal Investigator, *Innosuisse Contribution: 526,750 EUR*
- *Innosuisse Scale-up Coaching (Innosuisse funding application no. "112.073 SUSC-LS"): 15,000 CHF (Phase I) and 75,000 CHF (Phase II)*
- *Innosuisse Internationalisation Programme, funding application no. 70413.1 SUSC-LS, Bootcamp Texas, USA: 20,000 CHF*
- NVIDIA Academic Grant Program on Generative AI and Large Language Models for "Low-Polygon 3D Mesh Generation from Text Descriptions and Images using Transformer Models", 01/01/2025-30/07/2025, 2500 GPU A100 hours, *equivalent to 7200 EUR*

Funded research & development projects at University of Geneva

- CAHRISMA (ICA3-1999-10023, 01/02/2000-01/02/2003), ERATO (ICFP-502A3PR03, 01/02/2003-01/01/2006) STREPs: Deputy organization representative, co-author and contributor, *EU contribution: 595,670.00 EUR and 893,927.00 EUR respectively*
- LIFEPLUS (IST-2001-34545, 01/04/2002-30/09/2004) STREP: Co-author, contributor and deputy project technical coordinator. *LIFEPLUS was ranked first in the 2002 Networked Audiovisual Systems Directorate D proposals review, amongst 150 other submissions, Total EU contribution: 1,452,000 EUR*
- STAR (IST-2000-28764, 01/07/2001-30/06/2004), JUST (IST-1999-12581, 01/01/2000-30/05/2003) STREPs: Deputy organization representative, co-author & contributor, *Total EU contribution: 1,350,000 EUR and 1,527,500 EUR respectively*
- EPOCH (IST-2002-507382, 01/04/2004-30/03/2008), ENACTIVE (IST-2004-002114, 01/01/2004-30/12/2007) NoEs: Deputy organization representative, co-author & contributor, *Total EU contribution: 7,880,000 EUR and 5,000,000 EUR respectively*
- INDIGO (IST-045388, 01/02/2007-30/06/2010) STREP: Deputy organization representative, co-author & contributor, *Total EU contribution: 2,079,999 EUR*
- INTERMEDIA (IST-2006-38419, 01/10/2006-30/9/2010) NOE: Deputy project coordinator, co-author & contributor, *Total EU contribution: 5,596,000 EUR*

Invited Keynote Talks in Peer-reviewed International Conferences (34)

1. *"Virtual Cultural Heritage"*, Naturalia-Artificialia-Virtualia'01, University of Aegean, Mytilene, 2001
2. *"Real-time realistic rendering and subtle body movements for cultural heritage virtual actors"*, Keynote Speech, Cultural Convergence 06, Foundation of Hellenic World, Athens, 2006
3. *"Recreating daily life in Pompeii"*, Keynote Speech, Arqueologica 2.0, Seville, 2009
4. *"Presence and Interaction in Mixed Reality Heritage"*, University of Castilla-La Mancha, Ciudad Real, 2010
5. *"Bridging real and virtual worlds"*, Virtual World Conference, Serious Games Institute, University of Coventry 2010
6. *"Mobile, cross-platform, life-size animated virtual characters in indoors and outdoors AR heritage sites for high-fidelity presence and interaction"*, EVA-MINERVA2014, XIth Annual International Conference for Professionals in Cultural Heritage, Jerusalem, 2014
7. *"Gamification with virtual characters at the borders of mixed reality and algebras"*, Computer Animation and Social Agents 2016 (CASA'16), University of Geneva, Geneva 2016
8. *"Enabling character simulation technologies across the XR continuum"*, ViMM Thematic Area Workshop, University of Geneva, Geneva, 2017
9. *"XR technologies in medical training: new possibilities and potential risks"*, New Technologies in Health: Medical, Legal and ethical Issues, Aristotle University of Thessaloniki, Thessaloniki, 2019
10. *"MAGES 3.0: Tying the knot of medical VR"*, In ACM SIGGRAPH 2020 Immersive Pavilion (SIGGRAPH '20), virtual media tour recap, online, 2020
11. *"Virtual Reality in Acute Care: From Training to Application"*, 2nd Swiss Congress of Tele Emergency Medicine and eHealth, Bern, 2021
12. *"Accelerate world's transition to medical VR training with applied computer graphics research"*, CGS CGI2021, Geneva, 2021
13. *"Computational XR medicine: latest advances towards metaverse-ready virtual training"*, IVRHA workshop, Dublin, 2021
14. *"Accelerating world's transition to medical VR training: standards and ethics"*, ITU Kaleidoscope, Geneva, 2021
15. *"Latest advances towards metaverse-ready medical VR training"*, Society for Simulation in Europe, SESAM22, Seville, 2022
16. *"New frontiers in simulation-based VR training for healthcare"*, 6th NASCE / UEMS Scientific Meeting, Athens, 2022
17. *"Medical Spatial Computing: Unraveling the Future of Medical VR Training through challenges, opportunities, and insights"*, HarvardXR 2023, Harvard University, Boston, 2023
18. *"From low-code geometric algebra to no-code geometric deep learning: computational models, simulation algorithms and authoring platforms for immersive scientific visualization, experiential visual analytics and the upcoming educational metaverse"*, IEEE Virtual Reality 2023, Workshop on 3D Content Creation for Simulated Training in Extended Reality (TrainingXR), online, 2023
19. *"Education 4.0: after zoom and chatgpt what? the rise of extended reality technologies in education"*, 4th International Conference on Artificial Intelligence, eLearning, eCreativity, Department of Education, University of Crete, online, 2023

20. *"State-of-the-art in Computational medical XR education, experiential learning and training"*, SIGGRAPH Frontiers workshop 2023, Los Angeles, 2023
21. *"Computational Medical XR: Spatial, Neural and Wearable Computing Converging to Transform Healthcare"*, SIGGRAPH Frontiers talk 2023, Los Angeles, 2023
22. *"Next-Generation Healthcare Education: Leveraging Extended Reality and Spatial Computing with Low-Code / No-Code Content Creation Tools"*, SHIFT-MedicalXR, Heidelberg, 2023
23. *"Generative AI for computational medical XR"*, International VR Healthcare Association Europe, Helsinki, 2023
24. *"XR and deep learning enabling technologies for the future medical metaverse curricula"*, GAMMA workshop 2023, St. Pölten University of Applied Sciences, 2023
25. *"Generative AI for authoring medical XR training applications"*, International VR Healthcare Association, IVRHA'24 Florida, 2024
26. *"Revolutionizing Education: Leveraging Deep Learning, Generative AI, and Spatial Computing for Enhanced Spatial Learning"*, University of Western Macedonia, Florina, 2024
27. *"Revolutionizing Surgical Training: Bridging Tradition and Technology through XR and Generative AI"*, German Surgical Society conference, DCK 2024, Leipzig, 2024
28. *"Information and Communication Technologies 4.0: After Remote Education and Artificial Intelligence, What's Next? The Upcoming Surge of Extended Reality Technologies in Education."*, University of Crete, Department of Education, Rethymno, 2024
29. *"Journey Through the Vertex of Impactful Innovation: From Computer Graphics frameworks to Geometric Algebra and Computational Medical Extended Reality"*, CGI2024 MIRALab workshop, Geneva, 2024
30. *"Geometric Algebra for Impactful Computer Graphics in XR"*, ENGAGE-CGI 2024, Geneva, 2024
31. *"Accelerating Medical XR Development with Generative AI"*, BuildWellBeing & Immersive Expo Austria 2024, St Polten, Austria, 2024
32. *"Accelerating Computational Medical Extended Reality"*, Stanford Graduate School of Business, Stanford, 2024
33. *"Deep Medicine: The Convergence of LLM World Models and Medical training through Spatial Computing"*, XRUK Conference 2024, Birmingham, UK, 2024
34. *"Neurosymbolic AI Meets XR: Shaping the Future of Medical Training with Computational XR (CMXR)"*, International VR Healthcare Association Europe Conference, IVRHA'24 Europe, Geneva, 2024

Invited Talks in Academic institutions, International Tutorials, Summer Schools & Panels (39)

1. *"State of the art in Real-time VR and AR systems"*, (tutorial), CGI04, Heraklion, 2004
2. *"Real-time GPU based rendering"*, (tutorial), EPFL, Lausanne, 2004
3. *"Real-time frameworks for VR/AR simulation"*, (tutorial), University of Geneva, Geneva, 2005
4. *"Real-time Inhabited Virtual Worlds and Interaction: Illumination models for interactive, populated real-time virtual worlds"*, (tutorial), Eurographics06, Vienna, 2006
5. *"Enaction and the Concept of Presence"*, (panel), Enactive06, Grenoble, 2006
6. *"Outlooks for long term academic research in FP7 in the Networked media area"*, (Invitation-only panel organized by EC), EC DG INFSO, Brussels, 2007
7. *"Knowledge representation in virtual heritage: the state of the art and the emerging challenges"*, (panel), Arqueologica 2.0, Seville, 2009
8. *"Presence and Interaction in Mixed Reality"*, University of Geneva Summer School, Zermatt, 2010
9. *"HDR Image Based Lighting and illumination models for dynamic and static virtual characters"*, HDRi Summer School, Heraklion, 2013
10. *"Gamification, Presence and Interaction in Mixed Reality using Geometric Algebra"*, Kogakuin University, Tokyo, 2015
11. *"Gamified interaction and real-time rendering in Mixed Reality for Cultural Heritage"*, (ITN-DCH Summer School), co-located with CGI16, Heraklion, 2016
12. *"Mixed Reality and Gamification for Cultural Heritage"*, Politecnico di Milano, Department of Architecture & Construction Engineering Summer School, Milan, 2016
13. *"Gamified Presence in virtual museums"*, (tutorial), CGI17, Yokohama, 2017

14. *"Rules and Models versus Data and Machine Learning in Graphics and Vision"*, (panel), CGI17, Yokohama, 2017
15. *"From Geometric Algebra to Psychomotor Surgical Training in VR"*, University of Southern California, Institute of Creative Technologies, Los Angeles, 2018
16. *"Transforming medical education and training with VR"*, VR in Healthcare Symposium, Zurich, 2018
17. *"Medical experiential training for accelerated learning in VR"*, Intel HQ, San Jose, 2018
18. *"Medical VR experiential training simulators"*, Oculus-Facebook HQ, Menlo Park, 2018
19. *"Transforming Medical Education and Training with VR using M.A.G.E.S."*, Google HQ, Mountain View, 2018
20. *"World's first coop VR collaborative shared surgery training"*, Stanford University Med School, USA, 2018
21. *"Massive Open Online Courseware in Virtual Reality"*, Coursera HQ, Mountain View, 2019
22. *"XR simulation-based empirical learning for virtual surgery"*, World XR Forum '19, Crans Montana, 2019
23. *"End-to-end social VR platforms"*, VRTogether EU Project Joint Business Clinic, Barcelona, 2020
24. *"XR technologies for medical training"*, Greek Electrical & Computer Engineering Students Conference, SFHMMY12, Start-up Panel, Thessaloniki, 2021
25. *"5G-edge spatial computing for smart cities"*, Smart Cities and Technologies Summer School, Athena European University, Heraklion, 2021
26. *"Education 4.0: after zoom what? The rise of extended reality technologies in education and computational creativity"*, Department of Education, University of Western Macedonia, Florina, 2021
27. *"Grand challenges for XR computational medicine: the case of training"*, Laboratory of Cognitive Neuroscience, EPFL, Campus-Biotech, Geneva, 2021
28. *"ORamaVR: a FORTH-ICS startup spin-off"*, Beyond Exhibition, Thessaloniki, 2021
29. *"The proliferation of VR in medical education: a 20-years perspective"*, Dental Research Society, Athens 2022
30. *"MAGES SDK: transforming medical education with a VR authoring platform"*, World-Expo, Innovation Business Forum, Dubai, 2022
31. *"Deep-learning and XR technologies for building medical metaverse training apps"*, High Tech Surgery Association, virtual, 2023
32. *"Startup Ecosystem growth hacks"*, European Business Angels Network congress 2023, panel, Thessaloniki, 2023
33. *"The 6Gs of educational XR spatial computing applications: Enabling next-gen medical XR simulations"*, Mass General Brigham Hospital-Harvard Medical Extended Reality Group, online, 2023
34. *"There and back again: from applied research to academic entrepreneurship"*, CYENS, Nicosia, 2023
35. *"Academic entrepreneurship: the transformation of R&D to a deep-tech startup and eventually scaleup"*, VRDays, Rotterdam, 2023
36. *"Computational medical XR for surgical robotic training"*, Sofmedica, Bucharest, 2024
37. *"Computational medical XR for cardiology applications"*, Hellenic Cardiology Society, 2024
38. *"Universities as Business Incubators: Success Stories between Greece and Switzerland"*, Panel at Swiss Embassy in Greece, Athens 2024
39. *"Is Neurosymbolic AI the missing link for Scaling Computational Medical XR?"*, Warwick Digital Laboratory, University of Warwick, 2024

Awards & Distinctions (15)

1. Marie-Curie Intra-European Fellowship Award for Career Development (FP7-PEOPLE-2010-IEF), from the European Commission Research Executive Agency, April 2011
2. Euromed2014, Second-best paper award, November 2014
3. NVIDIA Academic partnership, h/w research grants, January 2012, January 2016
4. 2nd prize, NBG Seeds Competition, May 2018
5. AAHKS-Fare Grant award, May 2018
6. AWE2019 Best Societal Impact Award, May 2019
7. European Innovation Council, Seal of Excellence, July 2019, January 2020, March 2020
8. Epic Games Mega-grant award, 92,058.00 EUR, February 2020
9. "VR together" EU-funded project under grant agreement 762111, member of the international advisory board, May 2020

10. Elevate Greece Award for the Startup with “Best Societal Impact”, September 2021
11. CGI21-ENGAGE21: Best paper award for “Never 'Drop the Ball' in the Operating Room: An efficient hand-based VR HMD controller interpolation algorithm, for collaborative, networked virtual environments”
12. CGI24-ENGAGE24: Best paper award for “GA-Unity: A Production-Ready Unity Package for Seamless Integration of Geometric Algebra in Networked Collaborative Applications”, Geneva, Switzerland, 2024
13. ACM SIGGRAPH Asia 2024: Best Education paper award for “pyGANDALF - An open-source Geometric, ANimation, Directed, Algorithmic, Learning Framework for Computer Graphics”, Tokyo, Japan, 2024
14. 80th Conference of Surgical Orthopedics and Traumatology, <https://www.eexot2024.gr/assets/Program.pdf>, Innovation and Entrepreneurship Award, Thessaloniki, Greece, 2024
15. Innosuisse scale-up award, <https://ggba.swiss/en/oramavr-receives-scale-up-award-from-innosuisse-to-accelerate-growth/>, Switzerland, 2024

Participation and Demonstrations of R&D results in Industrial venues, fairs and forums

1. May 2003, 1st LIFEPLUS demonstration in Pompeii, Technical integration demonstration
2. September 2004, Final LIFEPLUS demonstration in Pompeii, Final demonstration and press conference
3. March 2005, “FET Presence Research”, IST-FET Exhibit, CeBIT’05 Exhibition, VR/AR character simulation
4. June 2006, “COMPUTEX”, Computex’06 Exhibit, Taipei, Re-enacted AR scene simulation
5. November 2007, Mobile AR guide, VRST07 Exhibition, Newport Beach, California
6. February 2008, Virtual Character simulation framework for cultural heritage, EPOCH Final Event Exhibition, Rome
7. November 2012, Real to Virtual rapid prototyping system for simulation and previsualization, Euromed2012, Limassol
8. November 2013, HiFi-PRINTER, VR character animation interpolation demonstration in SIGGRAPH Asia, Hong Kong
9. October 2015, ITN-DCH AR character animation and rendering, demonstration for Council of Europe Ministers Meeting, Limassol
10. December 2016, ORamaVR Psychomotor surgical training simulator, VRX’16 Conference, San Francisco
11. January 2017, ORamaVR Psychomotor surgical training simulator, INTEL Corporation, Hillsboro, Oregon
12. September 2017/2018, ORamaVR Psychomotor surgical training simulator, Thessaloniki International Fair, Thessaloniki
13. July 2018, ORamaVR world first coop first VR shared surgery training, Stanford University, California
14. July 2018, ORamaVR world first coop first VR shared surgery training, Google HQ, Mountainview, California
15. July 2018, ORamaVR world first coop first VR shared surgery training, Facebook HQ, Menlo Park, California
16. January 2019, ORamaVR medical training simulator, CES 2019, Las Vegas, California
17. June 2021, December 2019, ORamaVR medical experiential training, Swiss Foundation for Innovation and Training in Surgery & International Committee of Red Cross (ICRC), Geneva
18. April 2024, DCK 2024, ORamaVR XR medical training simulations, Leipzig
19. October 2024, Tech Tour Southeast ‘24, Athens
20. November 2024, Innosuisse Swissnex Startup Bootcamp in Texas, Austin & Houston, Texas

Reviewer for scientific journals and European public funding agencies

1. Frontiers in Virtual Reality, Frontiers
2. Frontiers in Robotics and AI, Frontiers
3. International Journal of Human Computer Interaction, Taylor & Francis
4. The Visual Computer, Springer-Nature
5. IEEE Transactions on Visualization and Computer Graphics
6. IEEE Transactions on Multimedia
7. IEEE Transactions on Learning Technologies
8. IEEE Access
9. ACM Journal on Computing and Cultural Heritage
10. ACM Transactions on Embedded Computer Systems

11. Journal of Cultural Heritage, Elsevier
12. Computer Animation and Virtual worlds, Wiley
13. Computers & Graphics, Elsevier
14. Entertainment Computing. Elsevier
15. Advances in Applied Clifford Algebras, Springer
16. Multimedia Tools and Applications, Springer
17. Journal of Information Processing Systems, KIPS
18. International Journal of Human-Computer Interaction, Taylor-Francis Group
19. *Agence Nationale de la Recherche - ANR (France)*
20. *IWT Agency for Innovation By Science And Technology (Belgium)*
21. *Research Promotion Foundation (Cyprus)*
22. *NSERC (Canada)*
23. *Hellenic Foundation for Research and Innovation (Greece)*
24. *European Commission, EU Projects Expert Reviewer and Evaluator, EC*

Programme committee member in international, per-reviewed conferences

1. *Programme committee member:* CGS CGI, CGS CASA, IEEE VR, IEEE Cyberworlds, ACM VRST, IEEE 3DUI, VSMM, CGS ENGAGE, IEEE ISVC, EG VAST, VS-Games, NVIDIA GTC, ACM Web3D, IEEE CoG, Eurographics
2. *Industry Chair:* Eurographics 2008
3. *Program Co-Chair:* Computer Graphics International 2021, Computer Graphics International 2020, HDRI Summer School 2013, GACSE 2016 (Co-located with CGI'16), ENGAGE 2017 (Co-located with CGI'17), and every year till - ENGAGE 2024 (Co-located with CGI'24)
4. *Conference Chair:* Computer Graphics International 2016

Journal editorial services

1. Computer Animation and Virtual worlds, John Wiley and Sons Ltd: 2007 special issue, "Special Issue on Wireless and Mobile Technologies in Mixed Realities": *guest-editor*
2. The Visual Computer, Springer: *associate editor*
3. Encyclopedia of Computer Graphics and Games, Springer Nature: *editorial board member*
4. Virtual Reality & Intelligent Hardware, Elsevier: *editorial board member*
5. Applied Sciences, MDPI: *editorial board member*
6. Advances in Applied Clifford Algebras, Springer: *review editor*
7. Frontiers in Virtual Reality, Frontiers Media S.A.: *review editor*
8. Europeana Task Force Group in Advanced documentation of 3D digital assets: *member*
9. Frontiers in Virtual Reality, Frontiers Media, special issue (Research Topic Lead Editor), "New Virtual Reality and Spatial Computing Applications to Empower, Upskill and Reskill Medical Professionals in a Post-Pandemic Era", 2021
10. Frontiers in Virtual Reality, Frontiers Media, special issue (Research Topic Lead Editor), "Virtual Reality/Augmented Reality Authoring Tools", 2021

Professional Memberships

1. *Board Member:* Computer Graphics Society (CGS)
2. *Member:* Institute of Electrical and Electronics Engineers (IEEE), IEEE Digital Senses Initiative
3. *Member:* Association for Computing Machinery (ACM), Special Interest Group on Graphics and Interactive Techniques (SIGGRAPH)
4. *Member:* Eurographics Association (EG)
5. *Member:* META AR/VR User Research Panel

Academic administrative services and departmental outreach activities

- University of Crete (UoC) Computer Science Department Committees for Postgraduate studies: 2011, 2012, 2013, 2014, 2015, 2017, 2018, 2020, 2021
- UoC Computer Science Department Committee for Undergraduate studies: 2015, 2016, 2017, 2018, 2019
- UoC Computer Science Department Committee for ERASMUS+: 2015, 2016, 2017, 2018, 2019, 2020, 2021, 2022, 2023
- UoC Computer Science Department Committee for material procurement: 2017, 2018, 2019
- UoC Computer Science Department Committee for Internships: 2020, 2021
- UoC ELKE Research Committee of the University of Crete, Evaluation Committee member: 2017, 2018, 2019
- UoC Computer Science Department Open days demonstration participation: 2016, 2017, 2018, 2019
- UoC Open – Courseware full course lecturing material for “CS150: Programming”
<https://opencourses.uoc.gr/courses/course/view.php?id=219> : 2018
- Event organisation, invitation, live demonstration and presentation of the UoC Computer Science Department, FORTH and ORamaVR activities to the Pfizer Inc. CTO Lydia Fonseca and her team, during their evaluation visit for their next Centre of Excellence outside USA. According to their post-visit thanking letter, Mrs. Fonseca expressed that this visit was instrumental to Pfizer for selecting Greece as the country to host their next corporate Centre of Excellence: 2019
- UoC 2nd Summer camp of applied mathematics, course presentation: 2019
- “Αναθεώρηση της Στρατηγικής Έξυπνης Εξειδίκευσης Περιφέρειας Κρήτης (RIS3Crete) για τη νέα Προγραμματική Περίοδο 2021-2027 ΥΓΕΙΑ”, Invited Talk, Heraklion, 2021

Teaching & Student Supervision

- “Computer Graphics”, Undergraduate Course CS-358, University of Crete, Spring 2010, Winter 2011 till now every Winter semester
- “Programming with C++”, Undergraduate Course CS-150, University of Crete, Spring 2012, till now every Spring semester
- “Interactive Computer Graphics”, Postgraduate Course CS-553, University of Crete, Spring 2012, till now every Spring semester
- “Simulating body and face”, Postgraduate Course 4304045, University of Geneva, Spring 2007
- Post-doc Supervision (4):
 1. Dr. Manos Kamarianakis, University of Crete & ORamaVR, on-going
 2. Dr. Antonis Protopsaltis, ORamaVR, on-going
 3. Dr. Prodromos Kolyvakis, ORamaVR, on-going
 4. Dr. Stephanie Bertrand, ICS-FORTH, 2021-2023
- PhD Student Supervision & Co-Supervision (20):
 1. Pavlos Zikas, “neural in-XR editor design patterns”, PhD thesis, University of Geneva, on-going
 2. Nikos Lydatakis, “soft-body mesh deformations in edge-cloud”, PhD thesis, University of Crete, on-going
 3. Stratos Geronikolakis, “neural XR transition rendering framework in HCI”, PhD Thesis, University of Crete, on-going
 4. Mike Kentros, PhD Thesis, University of Crete, on-going
 5. George Kokkiadis, “game engine dissection methods in 5G/6G”, PhD Thesis, University of Crete, on-going
 6. Grigoris Tsopouridis, PhD thesis advisory committee (member of the 7-party committee), University of Ioannina, (on-going), Supervisor: Ioannis Fudos
 7. Anastasia Moutafidou, PhD thesis advisory committee (member of the 7-party committee), University of Ioannina, 2022, Supervisor: Ioannis Fudos
 8. Eva Mpaka, PhD thesis advisory committee (member of the 3-party committee), University of Geneva, 2022 Supervisor: Nadia Magnenat-Thalmann, co-supervisor: George Papagiannakis
 9. Dennis Bautembach, PhD thesis advisory committee (member of the 3-party committee), University of Crete, 2021, Supervisor: Antonis Argyros
 10. Drossis Yannis, “Information Worlds: Interactive Visualizations and Storytelling using Augmented, Virtual and Mixed Reality”, PhD thesis advisory committee (member of the 3-party committee), University of Crete, 2019, Supervisor: Constantine Stephanidis
 11. Kaltsa Vagia, “Μηχανική όραση για ανίχνευση γεγονότων σε βίντεο στοχαστικών κινήσεων”, Aristotle University of Thessaloniki, 2018, Supervisor: Michalis Strinzis

12. Yvain Tisserand, *"Fast prototyping and deformation of virtual humans"*, PhD thesis advisory committee, University of Geneva, 2018, Supervisor: Nadia Magnenat-Thalmann
 13. Stavroula Ntoa, *"Uxami Framework: User Experience Evaluation In Ambient Intelligence Environments"*, University of Crete, 2017, Supervisor: Constantine Stephanidis
 14. Georgios Margetis, *"Inprinted framework: interacting with augmented physical printed matter in ambient intelligence environments"*, University of Crete, 2017, Supervisor: Constantine Stephanidis
 15. Manos Zidianakis, *"A cross-platform, remotely-controlled mobile avatar simulation framework for Aml environments"*, University of Crete, 2015, Supervisor: Constantine Stephanidis
 16. Markos Sigalas, *"Full-body pose tracking under severe occlusions - the Top View Reprojection approach"*, University of Crete, 2015, Supervisor: Panos Trahanias
 17. Nikolaos Kyriazis, *"Computational methods for observing and understanding the interaction of humans with objects of their environment"*, University of Crete, 2014, Supervisor: Antonis Argyros
 18. Andreas Vassilakis, *"Άμεση Απόδοση των Προσεγγιστικών Παραμορφώσεων Περιβλήματος Βασισμένες σε Χαρακτηριστικά"*, University of Ioannina, 2014, Supervisor: Andreas Fudos
 19. Alessandro Foni, *"Methodological Approaches for the Protection of Cultural Heritage in the Digital Age"*, PhD thesis advisory committee, University of Geneva (member of the 3-party committee), 2013, Supervisor: Nadia Magnenat-Thalmann, co-supervisor: George Papagiannakis
 20. Patrick Salamin, *"Context Aware, Multimodal and Semantic Rendering Engine"*, PhD thesis advisory committee, Ecole Polytechnique Fédéral de Lausanne - EPFL, 2010, Supervisor: Daniel Thalmann
- MSc Student Supervision & Co-Supervision (34):
 1. Eleni Grigoriou, *"XR gamification design patterns for automated HCI authoring"*, MSc thesis, University of Crete, on-going
 2. Ioanna Kartsonaki, *"Human proficiency assessment in HCI enhanced learning"*, MSc thesis, University of Crete, on-going
 3. Michael Tamiolakis, *"High-realism Real-Time Cutting, Tearing \& Drilling of 3D Deformable Models in XR environments"*, MSc thesis, University of Crete, on-going
 4. John Petropoulos, *"pyGandalf – a Geometric, Animation, Directed, Algorithmic, Learning Framework for interactive computer graphics"*, MSc thesis, University of Crete, 2024
 5. Achileas Filippidis, *"Mistakes were made; Design Patterns for Error Feedback in Virtual Reality Training Simulations in a no-code authoring tool"*, MSc thesis, University of Crete, 2024
 6. George Kokkiadis, *"ImmerseDataXR: Advancing Data Comprehension with Immersive Visualizations"*, MSc thesis, University of Crete, 2024
 7. Dimitrios Angelis, *"3D Scene Generation and Editing using Foundational Models and Geometric Algebra"*, MSc thesis, University of Crete, 2024
 8. Zinovia Stephanidi, *"Development of a toolkit for polymorphic intelligent user interfaces in extended reality employing machine learning"*, MSc Thesis, University of Crete, 2022
 9. Eleni Stephanidi, *"The LECTOR Podium. An innovative teacher workstation for the Intelligent Classroom of the future"*, MSc Thesis, University of Crete, 2022
 10. Stratos, Geronikolakis, *"An XR rapid prototyping framework for interoperability across the reality spectrum"*, MSc Thesis, University of Crete, 2020
 11. Mike, Kentros, *"A machine-learning recommendation algorithm for extended reality psychomotor training"*, MSc Thesis, University of Crete, 2020
 12. Stephanidi, Evropi, *"An Approach for the Authoring, Visualization and Training of Craft Experiences, using Human Motion, Virtual Humans, Machines and Tools"*, MSc Thesis, University of Crete, 2020
 13. Stylianos Georgiou, *"Multimodal and Networked Social VR Learning"*, MSc Thesis, University of Crete, 2019
 14. Stavros Kateros, *"Psychomotor Interaction for Enhanced VR User Experience"*, MSc Thesis, University of Crete, 2019
 15. Nikos Lydatakis, *"Physics based interaction in collaborative virtual reality environments"*, MSc Thesis, University of Crete, 2019
 16. Pavlos Zikas, *"Immersive Visual Scripting of Gamified Training based on VR Software Design Patterns"*, MSc Thesis, University of Crete, 2019
 17. Eva Mpaka, *"Retraining of fine movement of paretic hand through VR gaming, presence, musical rhythmical stimuli, based on cognitive feedback"*, June 2017, MSc Thesis, University of Crete
 18. Petros Papanikolaou, *"Physically principled character lighting and shading in real-time"*, June 2013, MSc Thesis, University of Crete
 19. Iraklis Bekiaris, *"GRETA: an intelligent farmhouse"*, 2020, University of Crete, Supervisor: Constantine Stephanidis

20. George Nikitakis, "CognitOS Classboard: a multimodal interaction framework for enhancing the whiteboard of the intelligent classroom", 2020, University of Crete, Supervisor: Constantine Stephanidis
 21. Andreas Michelakis, "ACOUSMA: An intelligent mechanism towards providing personalized auditory feedback in Ambient Intelligence Environments", 2020, University of Crete, Supervisor: Constantine Stephanidis
 22. Nena Basina, "ECAVI: A tool for Event Calculus Analysis and Visualization", 2019, University of Crete, Supervisor: Dimitris Plexousakis
 23. Stavros Dagkalakis, "Lina: a virtual-reality user interaction framework for intelligent greenhouses", 2019, University of Crete, Supervisor: Constantine Stephanidis
 24. Ammar Qammar, "A Hybrid Method for 3D Pose Estimation of Personalized Human Body Models", 2019, University of Crete, Supervisor: Antonis Argyros
 25. Maria-Evangelia Papadaki, "A 3D model for visualization the LOD cloud", 2017, University of Crete, Supervisor: Yannis Tzitzikas
 26. Chryssi Birliraki, "Interaction with Three Dimensional Virtual Humans in Ambient Intelligence Environments", 2014, University of Crete, Supervisor: Constantine Stephanidis
 27. Nikos Mouchtaris "Automatic User-Interface Generation from Annotated APIs in a Dynamic Language", 2013, University of Crete, Supervisor: Antony Savidis
 28. Ioannis Drossis, "TimeTunnel: Modeling and interactive information visualization using three dimensional timelines", 2012, University of Crete, Supervisor: Constantine Stephanidis
 29. Chryssi Birliraki, Interaction with expressive virtual characters, December 2011 – April 2012, FORTH, Supervisor: Constantine Stephanidis
 30. Anastasia Pampouchidou, Interaction with Expressive Virtual Characters, January 2011 - June 2011, MSc Thesis, FORTH, Supervisor: Panos Trahanias
 31. Silvina Ferradal, Integration of Facial/Body Communication in a Real-time Animation Framework, January – June 2005, MSc Thesis, University of Geneva, Supervisor: Nadia Magnenat-Thalmann
 32. Bart Kevelham, Point-Light based Shadowing for virtual humans in Mixed Realities, June – December 2005, MSc Thesis, University of Geneva, Supervisor: Nadia Magnenat-Thalmann
 33. Roman Meylan, Camera View-dependant Posture setup based on a COLLADA virtual human, May – July 2007, MSc Thesis, University of Geneva, Supervisor: Nadia Magnenat-Thalmann
 34. Maryam Arasteh, Evaluation and Comparison of latest 2D/3D Web Technologies, August 2007 – January 2008, MSc Thesis, University of Geneva, Supervisor: Nadia Magnenat-Thalmann
- Undergraduate Student Supervision at the University of Crete (38):
 1. Alvi Nikola, on going
 2. Marinos Chiarugi, on going
 3. Lefteris Toupis, "Rendering interface implementation using WebGPU in Elements framework", 2024
 4. Constantinos Georgiou, "Implementation of node editor and gizmos for entities inside the Elements framework", 2024
 5. Tasos Akoumianakis, "The differences between Godot and Unity's environments during the process of development", 2024
 6. Manos Platakis, "Physio-Fitness in AR: A New Dimension for Health Improvement", 2024
 7. Paul Ziotas, "Transformation visual controllers for interactive scene manipulation in virtual reality", 2023
 8. Nick Hliakis, "Modeling the Spatiotemporal Spread of COVID-19 in Closed Transportation Environments in a Virtual Reality Setting", 2023
 9. Manos Karidis, "Automatic Lipsync/Expressions based on skeleton", 2023
 10. Orestis Vlahiotis, "A configurable Analytics page based on file descriptors", June 2023
 11. Michalis Morfiadakis, "A Relay Server-based Network Solution for Virtual Reality Collaborative Applications", June 2023
 12. Michael Tamiolakis, "an adaptive, optimized soft-body mesh algorithm for interactive skinned geometrical meshes in VR", October 2021
 13. George Kokkiadis, "A mobile AR framework for both interactive label and object-based scene enhancement", October 2021
 14. Giannis Petropoulos, "An integrated algorithm for geometric cut, tear and drill of skinned meshes in VR", October 2021
 15. Michalis Dodis, "a collaborative shared networked simulation algorithm for edge-computing in VR", October 2021
 16. Achileas Apostolou, "Turing Test with interactive, dialogue-based virtual humans", October 2021
 17. Achileas Fillipidis, "A cross-platform VR optimized visualization system of human body anatomy", October 2020

18. Flora Fyka, "Inverse Kinematics for Virtual Hand Interaction inside Virtual Reality Environments", October 2020
19. Enrica Cimmarrusti, "Low powered, untethered Virtual Reality Head Mounted Display for medical visualization", October 2020
20. Eleni Grigoriou, "Big-data Interaction with a Virtual Human in Virtual Reality", October 2020
21. Eleni Sefanidi, "The LECTOR Podium. An innovative teacher workstation for the Intelligent Classroom of the future", October 2020
22. Andreas Pattakos, "VR-Plank with full body simulation in immersive environment", January 2020
23. Ioanna Kartsonaki, "Low-cost, low-power VR, HMD rendering", September 2019
24. Giannis Evangelou, "Python-based modern GPU programming framework", September 2019
25. Dimitris Konstantinou, "Training Platform with Full Body VR Tracking System Using Inverse Kinematics", September 2019
26. Papadakis, M., *A Mobile-VR, gamified synaesthesia simulation framework*, January 2018
27. Kanakis, M., *VR gamification based on open-source simulation toolkits*, January 2017
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31. Zikas, P., *Interactive Crowd Simulation*, January 2016
32. Lydatakis, N., *Real-time High Dynamic Range (HDR) shadowing for dynamic character simulation*, October 2015
33. Kateros, S., *Comparison of HMD-Enabled VR frameworks for production and gamification of virtual characters*, October 2014
34. Georgiou, S., *A Head Mounted Display VR framework for 3D&2D multimedia presentations*, October 2014
35. Kampouris, S., *Life-size virtual characters in Augmented Reality*, February 2013
36. Greassidou, E., *GPU Collada-based morph targets for facial animation*, February 2013
37. Patsiouras, N., *Virtual Character Face and Body simulation dataset*, July 2012
38. Kamileris, D., *Real-time shader-based per-fragment lighting for dynamic objects in WebGL*, July 2012

Hellenic army service

- 523 Infantry battalion (Private, 'Fighter' distinction awarded, November-December 2008)
- 645 Motorized Infantry battalion (Private, Systems Administrator, January-May 2009)

Media Coverage

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2. "Virtual reality brings past to life", *BBC News*, <http://news.bbc.co.uk/2/hi/technology/3472589.stm> , February 2004
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Languages

1. English (fluent),
2. German (working knowledge),
3. French (working knowledge),
4. Greek (native language),
5. Language Diplomas: Cambridge First Certificate, Zertificat Deutsch als Fremdsprache

References

- Available upon request