



Panayiotis Charalambous

COMPUTER GRAPHICS · COMPUTER ANIMATION · CROWDS · VIRTUAL HUMANS · DATA-DRIVEN SIMULATIONS

6, Verias, 2023, Nicosia, Cyprus

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Professional Experience

Research Assistant Professor, Team Leader of the V-EUPNEA MRG

Nicosia, Cyprus

CYENS - CENTRE OF EXCELLENCE

Jun 2019 -

- Leading the “V-EUPNEA: Living, Breathing Virtual Worlds MRG”.
- The main research focus of the group is on Computer Animation and Computer Graphics.
- Website: <https://veupnea.github.io>

Visiting Lecturer

Nicosia, Cyprus

UNIVERSITY OF CYPRUS

Sep 2018 - May 2019

- Lecturer on various courses

Associate Research Scientist / Computational Scientist

Nicosia, Cyprus

THE CYPRUS INSTITUTE, CASTORC CENTER

Sep 2016 - Aug 2018

- Horizon2020 funded VI-SEEM project.

Visiting Lecturer

Nicosia, Cyprus

OPEN UNIVERSITY CYPRUS

Feb 2016 - Jun 2016

- Lecturer in the Masters level course: “Agents and Multi-agent systems”

Post-Doctoral Fellow

Rennes, France

INRIA RENNES BRETAGNE-ATLANTIQUE, MIMETIC & LAGADIC TEAMS

Jun 2014 - May 2016

- Worked on novel Crowd Simulation and Synthesis algorithms.

Research Associate

Nicosia, Cyprus

UNIVERSITY OF CYPRUS, GRAPHICS AND VISUALIZATION LAB

Feb 2007 - May 2014

- Worked on various RPF funded projects: RecoNLife, MobileAR, SCOLIOSIS, SCOLIOSIS 2, KIKIPEZ.
- Teaching Assistant to various undergraduate and postgraduate level courses.

Research Associate

Nicosia, Cyprus

UNIVERSITY OF CYPRUS, XI-GROUP COMPUTER ARCHITECTURE LAB

Jul 2005 - Jan 2007

- Developed simulation tools for power and thermal characteristics of CPUs

Education

Ph.D in Computer Science

Nicosia, Cyprus

UNIVERSITY OF CYPRUS

April 2014

- Thesis: “Data-Driven Techniques for Simulating and Evaluating Crowds”

M.Sc in Informatics and Telecommunications

Athens, Greece

NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS

2002 - 2005

- Thesis: “Lightmap Generation Using Photon Mapping”

B.Sc in Informatics and Telecommunications

Athens, Greece

NATIONAL AND KAPODISTRIAN UNIVERSITY OF ATHENS

1998 - 2002

- Thesis: “Geometric Polygon Clipping Algorithms”

Grants and Projects

ShareSpace

375K / 3M

JAN 2023 - DEC 2025

Principal Investigator (alongside Yiorgos Chrysanthou). The project has received funding from H2020.

METACITIES

511K / 3M

JANUARY 2023 - DECEMBER 2025

The project has received funding from H2020.

PREMIERE

600K / 3M

OCTOBER 2022 - SEPTEMBER 2025

The project has received funding from H2020.

3DNicosia++

47K

APRIL 2022 - MARCH 2023

Internally funded project related to the *iNicosia* flagship project.

iNicosia

OCTOBER 2021 -

<http://inicosia.cyens.org.cy>

Currently the lead from the Research Department for the flagship project of CYENS.

ReInHerit

320K / 3M

FEB 2021 - JAN 2024

<http://reinherit.eu>

Principal Investigator of the project for CYENS. This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 101004545.

Sony Pictures Animation

OCT 2020 -

Principal Investigator of the ongoing collaboration of CYENS with Sony Pictures Animation.

EHEM

175K / 405K

SEP 2020 - AUG 2023

<https://ehemproject.eu>

Principal Investigator of the project for CYENS. The project was approved in the JPI Cultural Heritage Conservation, Protection and Use (0127) call in 2020. The JPICH has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 699523.

Astrotourism

153K / 1.21M

NOV 2019 - OCT 2022

The Project INTEGRATED/0918/0038 is co-financed by the European Regional Development Fund and the Republic of Cyprus through the Research and Innovation Foundation and it is supported by the Deputy Ministry of Tourism and the Deputy Ministry of Research, Innovation and Digital Policy.

Professional Activities

CONFERENCE ORGANIZATION

- Conference chair for the Computer Animation and Social Agents conference (CASA) 2023.
- Conference chair for the ACM Siggraph Conference on Motion, Interaction and Games (MIG) 2018. (mig2018.rise.org.cy)
- Local chair of the IMET conference 2022 (imet.cyens.org.cy/).

COMMITTEES

- International Program Committee member for several conferences including IEEE VR, Eurographics, the ACM Siggraph Conference on Motion, Interaction and Games, the workshop on Virtual Humans and Crowds for Immersive Environments, the World Society for Computer Graphics, IEEE-AIVR and IEEE Melecon.

PROFESSIONAL MEMBERSHIPS

- Association of Computing Machinery (ACM).
- European Association of Computer Graphics (Eurographics).
- International Institute of Electrical and Electronics Engineers (IEEE).

REVIEWING

- Transactions on Graphics (TOG), IEEE Transactions on Visualization and Computer Graphics, Computer Animation and Virtual Worlds Journal (CAVW), Computer and Graphics Journal, IEEE Transactions on Multimedia, IEEE Virtual Reality, Eurographics, Siggraph Asia, Visual Computing, Eurographics Symposium on Rendering (EGSR), VRST, WSCG, Pacific Graphics, Motion, Interaction and Games (MIG), Computer Graphics International (CGI), IEEE/RSJ International Conference on Intelligent Robots and Systems.

TALKS

- March 7, 2018: Colloquium at the European University Cyprus. Methods for the simulation and analysis of Human Crowds.
- October 4, 2017: Talk at The Cyprus Institute. Data-Driven methods for the Simulation, Analysis and Visualization of Human Crowds.
- April 7, 2014: Eurographics 2014. Tutorial (TUT1) on Data-Driven Crowd Simulation and Analysis (With Yiorgos Chrysanthou).

Teaching

CYENS - Centre of Excellence

Jun 2019 -

SUMMER SCHOOL ON COMPUTER GAMES AND ARTIFICIAL INTELLIGENCE

Main tutor of the Summer School targeting high school students.

University of Cyprus

Sep 2018 -

COURSES (VISITING LECTURER)

- CS653: Computer Games Technologies
- CS426: Computer Graphics
- CS133: Object Oriented Programming
- CS131: Programming Principles I
- CS231: Data Structures and Algorithms

The Cyprus Institute

Sep 2017 - Dec 2017

PHD COURSES (LECTURER)

- CoS516: Computer Graphics and Data Exploration

Open University Cyprus

Feb 2016 - Jun 2016

MASTER COURSES (LECTURER)

- PES602: Agents and Multi-Agent Systems

University of Cyprus, Department of Computer Science

Feb 2007 - May 2014

MASTER COURSES (TEACHING ASSISTANT)

- CS656: Computer Graphics, Modelling and Realism, Spring Semester 2007 – 2008
- CS607: Graphical and Image Processing, Fall Semester 2008 – 2009
- CS653: Computer Games Software Technology (Lectures on Game A.I. - 2013, 2014)

UNDERGRADUATE COURSES (TEACHING ASSISTANT)

- CS426: Computer Graphics, Fall Semesters 2007 – 2009
- CS231: Data Structures and Algorithms, Fall Semesters 2008-2012
- CS497: Numerical Analysis, Fall Semester 2007 – 2008
- CS034: Introduction to Programming for Engineers, Spring Semester 2007-2008
- CS032: Introduction to Programming and Problem Solving, Spring Semester 2007-2008

Feb 2007 - May 2014

University of Cyprus, Department of Computer Science

2016 - 2018

OTHER LECTURES

- CS653: Computer Games Software Technology. Guest Lectures on Artificial Intelligence for Computer Games.
- Summer School 2016, 2018. Lectures on Computer Graphics, Game Design, Animation and Development of a game in the Unity Game Engine.

Publications

Book Chapters

1. Charalambous P., Chrysanthou Y., "Learning Heterogeneous Crowd Behavior from the Real World". In Pelechano N., Allbeck J., Kapadia M. and Badler N., editors, "Heterogeneous Crowd Simulation", pp. 43–60. A.K. Peters, 2016.
2. Charalambous P., Chrysanthou Y., "Data Driven Crowd Evaluation". In Pelechano N., Allbeck J., Kapadia M. and Badler N., editors, "Heterogeneous Crowd Simulation", pp. 179–196. A.K. Peters, 2016.
3. Artopoulos G., Charalambous P., "Virtual Environments as a Technological Interface between Built Heritage and the Sustainable Development of the City". In Filippo Angelucci, editor, "BETHA - Built Environment Technologies and Healthy Architectures Series", Vol. 86.1.4. Franco Angeli, 2019.
4. Charalambous P., "Crowds in the City", In Artopoulos G., "Hybrid Heritagescapes as Urban Commons in Mediterranean Cities: essays on accessing the deep-rooted spatial interfaces of cities". CreateSpace. Cyprus, Nicosia: The Cyprus Institute. July 2018.

Journals

1. Charalambous P., Pettré J., Vassiliades V., Chrysanthou Y. and Pelechano N., “GREIL-Crowds: Crowd Simulation with Deep Reinforcement Learning and Examples”. *ACM Transactions on Graphics*, 2023 (In press. To be presented at ACM Siggraph 2023, Los Angeles, USA.).
2. Makri S. and Charalambous P. “Curriculum based Reinforcement Learning for traffic simulations”. *Computers and Graphics*, 2023 (In press.)
3. Evripidou E., Aristidou A. and Charalambous P. “Collaborative Museum Heist with Reinforcement Learning”. *Cocomputer Animations and Virtual Worlds*, 2023 (In press.)
4. Lemonari M., Blanco R., Charalambous P., Pelechano N., Avraamides M., Pettré J. and Chrysanthou Y., “Authoring Virtual Crowds: A Survey”. *Computer Graphics Forum*, 2022 (Presented at Eurographics 2022, Reims, France).
5. Charalambous P., Karamouzas I., Guy S, Chrysanthou Y., “A Data-Driven Framework for Visual Crowd Analysis”. *Computer Graphics Forum*, Vol. 33, Issue 7, pp. 41–50, October 2014 (Presented at Pacific Graphics 2014, Seoul, S. Korea).
6. Charalambous P., Chrysanthou Y., “The PAG Crowd: A Graph Based Approach for Efficient Data-Driven Crowd Simulation”. *Computer Graphics Forum*, Vol. 33, Issue 8, pp. 95-108, December 2014.
7. Aristidou A., Charalambous P., Chrysanthou Y., “Emotion Analysis and Classification: Understanding the Performers’ Emotions Using the LMA Entities”. *Computer Graphics Forum*, Vol. 34, Issue 6, pp. 262–276, September 2015 (Presented at Eurographics 2016, Lisbon, Portugal).
8. Aristidou A., Stavrakis E., Charalambous P., Chrysanthou Y. and Stephanía Loizidou Himona, “Folk Dance Evaluation Using LMA”. *Journal on Computing and Cultural Heritage*, Vol. 8, Issue 4, Article 20, August 2015.
9. Zhiguo R., Charalambous P., Bruneau J., Peng Q., Pettré J. “Group Modeling: a Unified Velocity-based Approach”. *Computer Graphics Forum*, Vol. 36, Issue 8, pp. 45–56. 2016 (Presented at Eurographics 2017, Lyon, France).
10. Artopoulos G., Charalambous P., Wehmeier C., “Immersive Computing and Crowd Simulation Techniques in Modeling Urban Commons: the case of Nicosia-Cyprus”. *International Journal of E-Planning Research (IJERPR)*, Vol. 8, Issue 1 (2019).
11. Charalambous P. and Artopoulos G., “Enabling virtual collaboration in Digital Cultural Heritage in the SEEM region”. *Scalable Computing: Practice and Experience (SCPE)*, Vol. 19, Issue 2, pp. 161–174, May 2018.

Conferences

1. Panayiotou A., Kyriakou Th., Lemonari M., Chrysanthou Y. and Charalambous P.. 2022. “CCP: Configurable Crowd Profiles.” In Special Interest Group on Computer Graphics and Interactive Techniques Conference Proceedings (SIGGRAPH ’22 Conference Proceedings), August 7-11, 2022, Vancouver, BC, Canada. ACM, New York, NY, USA, 10 pages.
2. Munoz-Pandiella, I., Bosch, C., Guardia, M., Cayuela, B., Pogliani, P., Bordi, G., Paschali, M., Andújar, C. and Charalambous, P., 2022, October. “Digital Twins for Medieval Monuments: Requirements from Art Historians and Technical Challenges for Analysis and Restoration.” In 2022 International Conference on Interactive Media, Smart Systems and Emerging Technologies (IMET) (pp. 1-8). IEEE.
3. Makri, S. and Charalambous, P., 2022, October. “Navigating a road network using Reinforcement Learning.” In 2022 International Conference on Interactive Media, Smart Systems and Emerging Technologies (IMET) (pp. 1-8). IEEE.
4. Makri, S. and Charalambous, P., 2021, August. “Towards a multi-agent non-player character road network: a Reinforcement Learning approach.” In 2021 IEEE Conference on Games (CoG) (pp. 1-5). IEEE.
5. Zacharatos, H., Gatzoulis, C., Charalambous, P. and Chrysanthou, Y., 2021, August. “Emotion Recognition from 3D Motion Capture Data using Deep CNNs. In 2021 IEEE Conference on Games (CoG) (pp. 1-5)”. IEEE.
6. Guardia Pons, M., Pogliani, P., Bordi, G., Charalambous, P., Andújar Gran, C.A., Muñoz Pandiella, I. and Pueyo Sandez, F.X., 2021. “Digital layered models of architecture and mural paintings over time.” In XXX Spanish Computer Graphics Conference, CEIG 2021: Málaga, Spain, September 22-24, 2021 (pp. 39-42). European Association for Computer Graphics (Eurographics).
7. Artopoulos G., Charalambous P. “Analysis of Spatio-temporal Data in Virtual Historic Spaces”. In Proceedings of ICAT-EGVE 2018 - International Conference on Artificial Reality and Telexistence and Eurographics Symposium on Virtual Environments, November 2018.
8. Kyrlitsias G., Neto A. B., Charalambous P., Avraamides M., Chrysanthou Y. “Virtual Environment Navigation Assisted by Neural Networks”. In Proceedings of Virtual Humans and Crowds for Immersive Environments (VHCIE 2018). 2018.
9. Jordao K., Charalambous P., Christie M., Pettré J. and Cani P. M., “CrowdArt: Density and Flow Based Crowd Motion Design”. In Proceedings of the Eighth International Conference on Motion in Games (MIG ’15). ACM, New York, NY, USA, 2015.
10. Ramirez Jose Guillermo Rangel, Lange D., Charalambous P., Esteves C., and Pettré, J., “Optimization-based computation of locomotion trajectories for crowd patches”. In Proceedings of the Seventh International Conference on Motion in Games (MIG ’14). ACM, New York, NY, USA, 7–16. 2014.
11. Charalambous P., Chrysanthou Y., “Classifying Pedestrian Behaviour using Random Forests”, Poster at Motion in Games 2013 (MIG’ 13), Trinity College, Dublin, Ireland, November 7 - November 9, 2013.
12. Charalambous, P., Iliadou, H., Apostolou, C. and Chrysanthou, Y., 2012, “Reconstruction of Everyday Life in 19th Century Nicosia”. 4th International Conference, EuroMed 2012, Limassol, Cyprus, October 29 - November 3, 2012. Proceedings, 568–577.
13. Charalambous P., Chrysanthou Y., “Learning Crowd Behavior”, Workshop on Crowd Simulation. Collocated with CASA 2010, Saint-Malo, France, May 31 - June 3, 2010
14. Charalambous P., Chrysanthou Y., “Learning crowd steering behaviors from examples”, Proceeding MIG’10 Proceedings of the Third international conference on Motion in games pp: 35-35, 2010
15. Iliadou H., Charalambous P., and Chrysanthou Y., “Reviving Nicosia of the XIXth Century”, 11th International Conference on Urban History, EAUH 2012, Prague, Czech Republic, 2012

Awards/Distinctions

Math **Cyprus Mathematics Society**, Distinction in the Nicosia Mathematics Competition.
Math **Cyprus Mathematics Society**, Distinction in the Pancyprian Mathematics Competition.

1995-1996

1995-1996

Technical Skills

Languages, C, C++, C#, Python, Java, Pascal, JavaScript, Basic, and Prolog.

Programming Tools, Unity3D, Unreal Engine, Visual Studio, gcc, g++, flex, bison, PyCharm, eclipse, NetBeans IDE, Borland JBuilder 9, Turbo Pascal, Matlab, Octave.

Multimedia/3D Tools, 3D Studio Max, DAZ3D, Krita, Photoshop, Gimp, Camtasia.

Operating Systems, Microsoft Windows 3.1 - 10, MS-DOS, Multiple Linux Distributions, Unix.

Other, Deep Learning (Tensorflow, Keras, Theano), scikit-learn Machine Learning Toolkit, scipy, OpenGL, GLUT, MFC, AWT, Qt, Swing, doxygen, Matlab, UML, Design Patterns, OOP, SQL, MongoDB, TCP/IP Programming, Unix System Programming.

Certificates

Deep Learning Specialization

Coursera

DEEPLARNING.AI

Oct 2020

- Online specialization consisting of five (5) courses on Deep Learning by *Prof. Andrew Ng* of Stanford University and DeepLearning.AI.
- <https://tinyurl.com/courseraDL2>

Generative Adversarial Networks (GANs)

Coursera

DEEPLARNING.AI

Jan 2021

- Online specialization consisting of three (3) courses on Generative models from DeepLearning.AI.
- <https://tinyurl.com/courseraGANs>