

Dr. rer. nat. Konstantinos Amplianitis

Computer Vision & Machine Learning Scientist

e – mail: kostampl@gmail.com Mobile: +353 87 987 4073 Web: www.kostasamplianitis.com

Personal Profile

A Postdoctoral Research Fellow of Creative Technologies at the Graphics Vision and Visualisation Group at Trinity College Dublin. Five years' R&D experience in Computer Vision and Machine Learning at universities and corporations in Germany and Ireland, respectively. My research spans in the areas of Computer Vision and Machine Learning, currently focusing on segmentation/matting of humans in video sequences using Deep Learning and 3D content creation for VR/AR applications.

Research Interests

Deep Learning, Human Segmentation in Video Sequences, Probabilistic Graphical Models, 3D Reconstructions, Free Viewpoint Video.

Professional Experience

Trinity College Dublin

Postdoctoral Research Fellow

09/2016 – Present

Graphics Vision and Visualisation Group

- Conducting research in the areas of 3D reconstructions, Object Segmentation/Matting.
- Assisting in the organisation of lectures/demos.
- Supervising Master and PhD students.

Siemens AG

Software Engineer

03/2015 – 06/2016

Mobility Division, Technology & Innovation

- Developed 3D object recognition algorithms related to AR products.
- Evaluated state-of-the-art SLAM algorithms.

Humboldt-Innovation GmbH

Research Associate

12/2015 – 06/2016

Computer Vision Group

- 3D reconstructions from panoramic cameras.

Humboldt University of Berlin

Research Associate

07/2012 – 06/2016

Computer Vision Group

- Developed 3D human recognition and motion algorithms for the purpose of monitoring, tracking and classifying people's behaviour in a train wagon.
- Participated in the software development of the visual programming environment Cassandra; a Hella Aglaia Mobile Vision product.
- Implemented a real time tracking system for detection and tracking of pedestrians in the main campus of the Charité university hospital.
- Developed multi-sensor RGB and RGBD human recognition algorithms.
- Implemented a large bundle adjustment system for fusing data from multiple structured light sensors and stereo cameras.
- Calibrated various RGB and RGBD sensors for specific requirements.

Education

Humboldt Universität zu Berlin

2012 – 2016

Ph.D. in Computer Science
Dissertation Title: 3D Real Time Object Recognition
Supervisor: Prof. Dr. rer. nat. Ralf Reulke

Technische Universität Berlin

2009 – 2012

M.Sc. in Geodesy and Geoinformation Science
Master Thesis: The Use of Multi Resolution Active Shape Models for Face Detection
Supervisor: Prof. Dr.-Ing. Olaf Hellwich

Athens University of Applied Sciences

2005 – 2009

B.Sc. in Geomatics and Geoinformatics Engineering
Bachelor Thesis: 3D Reconstructions from Uncalibrated Image Pair
Supervisor: Prof. Elli Petsa

Training

1. From Representation to Action and Interaction.
International Computer Vision Summer School (ICVSS), Sicily, Italy, 07/2017
2. Drones applied to Cultural Heritage and Archaeology.
International Summer School, Pontignano (Siena), Italy, 09/2013

Research Grants

1. 2017 NVIDIA Corporation, GPU Grant, Tesla XP GPU card, July 2017.

Teaching Experience

Trinity College Dublin

Computer Vision (CSGV1; Michaelmas Term 2017 – 2018).
Instructors: Prof. Aljosa Smolic.

Augmented Reality (CS7034; Hilary Term 2016 – 2017).
Instructors: Prof. Aljosa Smolic.

Computer Vision (CS4053; Michaelmas Term 2016 – 2017).
Instructors: Dr. Kenneth Dawson-Howe.

Vision Systems (CS7008; Michaelmas Term 2016 – 2017).
Instructors: Dr. Kenneth Dawson-Howe.

Computer Graphics (CS4052; Michaelmas Term 2016 – 2017).
Instructors: Dr. Carol O'Sullivan.

Humboldt University of Berlin

Stereobildverarbeitung (32313; WT 2012 – 2016).
Instructors: Prof. Ralf Reulke, Martin Misgaiski-Haß

Academic Services

Reviewer (Journals)

IEEE Image Understanding Journal
ISPRS Journal of Photogrammetry and Remote Sensing
EURASIP Journal on Advances in Signal Processing

Reviewer (Conferences)

ISPRS 2016
VISAPP 2016

Session Chair

VISAPP 2015/2016

Invited Speaker

Beuth Hochschule, School of Applied Sciences, 2016

Guest Class Lectures

Free Viewpoint Video for VR/AR Applications.
Athens University of Applied Sciences, 06/2017

3D Human Recognition in RGBD using CRFs.
Technische Universität Berlin, 02/2016

Monitoring the spatio-temporal of Human Actions.
Athens University of Applied Sciences, 10/2014

Computer Literacy

Operating Systems:	Windows, Unix
Programming Languages:	C/C++, Python
Script Languages:	MATLAB
C++ Libraries:	Boost, OpenMP
Optimization/Maths Frameworks:	Ceres, Eigen, FADBAD
Computer Vision Frameworks:	OpenCV, OpenMVS, OpenMVG, PCL
AR Frameworks:	MetaioSDK
Computer Graphics APIs:	OpenGL (basic)
User Interfaces:	Qt5 (basic)
Robotics Frameworks:	ROS (basic)
Revision Control Systems:	Git, SVN
Build Systems:	CMake
Unit Testing:	Google Tests
Typesetting:	L ^A T _E X

Memberships

- Institute of Electrical and Electronics Engineers (IEEE)
- The British Machine Vision Association (BMVA)
- Association for Computing Machinery (ACM)

- The Computer Vision Foundation (CVF)
- International Society for Photogrammetry and Remote Sensing (ISPRS)

Spoken Languages

Greek (Native), English (Fluent), German (Intermediate)

Supervised Students

Sebastian Lutz (PhD Candidate), Trinity College Dublin
 Corentin Chéron (Master Student), Trinity College Dublin

Certificates

Security City: Bringing Information Security to Life 05/2015
 Siemens AG, License: Z001NVMP

Honours/Awards

- Won the reading group competition at the ICVSS 2017 with the paper "Inspiring Computer Vision System Solutions", which is grounded on the seminar 3D scanning work "The Digital Michelangelo Project".
- Distinction Award in Piano Performance, Hellenic Ministry of Culture, 2008.
- Piano Performance Scholarship for the Academic year 2003 – 2004, NEFELI Conservatory, Athens, Greece.

Personal Activities

Piano Solist in Classical Music, NEFELI Conservatory, Athens, Greece 2008
 Degree in Classical Harmony, NEFELI Conservatory, Athens, Greece 2006

References

Furnished upon request.

Publications

Journal Publications

1. **Leave a Trace - A People Tracking System Meets Anomaly Detection**
 D. Rueß, K. Amliantis, N. Deckers, M. Adduci, K. Manthey, R. Reulke
 IJMA – The International Journal of Multimedia & Its Applications, 2017.

Conference Proceedings

1. **Virtual Play in Free - Viewpoint Video: Reinterpreting Samuel Beckett for Virtual Reality**
 N. O'Dwyer, N. Johnson, E. Bates, R. Pagés, J. Ondrej, K. Amliantis, D. Monaghan, A. Smolic
 VARCHI – Workshop on Virtual Reality and Augmented Reality meet Creative Industries (in Proceedings), 2017.

2. **Inspiring Computer Vision System Solutions**
J. Zilly, A. Boyarski, M. Carvalho, A. A. Abarghouei, K. Amliantis, A. Krasnov, M. Mancini, H. Gonzalez, R. Spezialetti, C. S. Prez, H. Li
arXiv preprint, July 2017.
3. **Leave a Trace - A People Tracking System Meets Anomaly Detection**
D. Rueß, K. Amliantis, N. Deckers, M. Adduci, K. Manthey, R. Reulke
arXiv preprint, July 2017.
4. **Human Recognition in RGBD combining Object Detectors and Conditional Random Fields**
K. Amliantis, R. Hänsch, R. Reulke
VISAPP – International Conference on Computer Vision Theory and Applications, 2016.
5. **Towards a 3D Pipeline for Monitoring and Tracking People in an Indoor Scenario using multiple RGBD Sensors**
K. Amliantis, M. Adduci, R. Reulke
VISAPP – International Conference on Computer Vision Theory and Applications, 2015.
6. **A Quality Evaluation of Single and Multiple Camera Calibration Approaches for an Indoor Multi Camera Tracking System**
M. Adduci*, K. Amliantis*, R. Reulke (*equal contribution)
ISPRS – International Society for Photogrammetry and Remote Sensing, 2014.
7. **Calibration of a Multiple Stereo and RGBD Camera System For 3D Human Tracking**
M. Adduci, K. Amliantis, R. Reulke
ISPRS – International Society for Photogrammetry and Remote Sensing, 2014.

Workshops

1. **3D Detection and Tracking in an Indoor Environment**
K. Amliantis, M. Adduci, R. Reulke
3D – NordOst, 2014.
2. **3D personenerkennung und verfolgung mit stereo und RGBD kameras**
M. Adduci, K. Amliantis, M. Misgaiski-Haß, R. Reulke
3D – NordOst, 2013.

Theses

1. **3D Real Time Object Recognition**
Doctoral Dissertation, Humboldt Universität zu Berlin, 2017.
2. **The Use of Multi Resolution Active Shape Models for Face Detection**
Master Thesis, Technische Universität Berlin, 2012.
3. **3D Reconstructions from Uncalibrated Image Pair**
Bachelor Thesis (in Greek), Athens University of Applied Sciences, 2009.