

Dr. Konstantinos Amliantis

Computer Vision and Machine Learning Researcher

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Personal Profile

A Postdoctoral Research Fellow at the Graphics Vision and Visualisation Group at Trinity College Dublin. Five years' research and development experience in Computer Vision and Machine Learning in universities, institutes and companies in Germany and Ireland respectively. My research spans the areas of Computer Vision and Machine Learning, focusing mostly on Deep Learning and 3D Content Creation for VR/AR applications.

Research Interests: Deep Learning, 2D/3D Object Segmentation/Matting, Probabilistic Graphical Models, 3D Reconstructions, Free Viewpoint Video.

Education

Humboldt University of Berlin **2012 – 2016**

Ph.D. (awarded the academic title of Dr. rer. nat.) in Computer Science

Dissertation Title: 3D Real Time Object Recognition

Supervisor: Prof. Dr. rer. nat. Ralf Reulke

Berlin Institute of Technology **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

Professional Experience

Trinity College Dublin **09/2016 – Present**

Postdoctoral Research Fellow

Graphics Vision and Visualisation Group

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

Humboldt-Innovation GmbH **12/2015 – 06/2016**

Research Associate

Computer Vision Group

- 3D reconstructions from panoramic cameras.

Siemens AG **03/2015 – 06/2016**

Software Engineer

Mobility Division, Technology & Innovation

- Development of 3D object recognition algorithms related to AR products.
- Evaluating existing state-of-the-art SLAM algorithms.

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

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:**
- Athens University of Applied Sciences, 2017
 - Technische Universität Berlin, 2016
 - Athens University of Applied Sciences, 2014

- Summer Schools:**
- International Computer Vision Summer School (ICVSS), Sicily, Italy, 2017
 - International Summer School "Drones applied to Cultural Heritage and Archaeology", Pontignano (Siena), Italy, 2013

Computer Literacy

- Operating Systems:** Windows, Unix
Programming Languages: C/C++, Python
Script Languages: MATLAB
C++ Libraries: Boost, OpenMP
Optimization/Maths Frameworks: Eigen
Computer Vision Frameworks: OpenCV, OpenMVS, OpenMVG, PCL
Deep Learning Frameworks: Caffe, Theano, Torch
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^AT_EX

Teaching Experience

Lectures/Seminars: • Stereobildverarbeitung (32313), Humboldt Universität zu Berlin, WT 2012 – 2016
• Augmented Reality (CS7034), Trinity College Dublin, ST 2016 – 2017

Course Work: • Augmented Reality (CS7034), Trinity College Dublin, ST 2016 – 2017
• Computer Vision (CS4053), Trinity College Dublin, WT 2016 – 2017
• Vision Systems (CS7008), Trinity College Dublin, WT 2016 – 2017
• Computer Graphics (CS4052), Trinity College Dublin, WT 2016 – 2017

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

Certificates

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

Personal Activities

Piano Solist in Classical Music **2008**
NEFELI Conservatory, Athens, Greece

Degree in Classical Harmony **2006**
NEFELI Conservatory, Athens, Greece

Honours/Awards

Distinction Award in Piano Performance **2008**
Hellenic Ministry of Culture

Piano Performance Scholarship **2003 – 2004**
NEFELI Conservatory, Athens, Greece

References

References upon request.

Publications

Journal Publications

1. **leave a trace - A People Tracking System Meets Anomaly Detection**
Rueß, D., Amplianitis, K., Deckers, N., Adduci, M., Manthey, K., Reulke, R.
The International Journal of Multimedia & Its Applications (IJMA), 2017.

Conference Proceedings

1. **Human Recognition in RGBD combining Object Detectors and Conditional Random Fields**
Amplianitis, K., Hänsch, R., and Reulke, R.
International Conference on Computer Vision Theory and Applications (VISAPP), 2016.
2. **Towards a 3D Pipeline for Monitoring and Tracking People in an Indoor Scenario using multiple RGBD Sensors**
Amplianitis, K., Adduci, M., and Reulke, R.
International Conference on Computer Vision Theory and Applications (VISAPP), 2015.
3. **A Quality Evaluation of Single and Multiple Camera Calibration Approaches for an Indoor Multi Camera Tracking System**
Adduci* M., Amplianitis* K., and Reulke, R. (*equal contribution)
International Society for Photogrammetry and Remote Sensing (ISPRS), 2014.
4. **Calibration of a Multiple Stereo and RGBD Camera System For 3D Human Tracking**
Amplianitis, K., Adduci, M., and Reulke, R.
International Society for Photogrammetry and Remote Sensing (ISPRS), 2014.
5. **3D Detection and Tracking in an Indoor Environment**
Amplianitis, K., Adduci, M., and Reulke, R.
3D – NordOst, 2014.
6. **3D personenerkennung und verfolgung mit stereo und RGBD kameras**
Adduci, M., Amplianitis, K., Misgaiski-Haß, M., and Reulke, R.
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.