Konstantinos Amplianitis

Computer Vision & Machine Learning Scientist
AR/VR Applications

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Education

Ph.D. in Computer Science
Humboldt University of Berlin, Germany
Dissertation: 3D Real Time Object Recognition
Supervisor: Prof. Dr. rer. nat. Ralf Reulke
⊞ Dec 2012 - Mar 2017

M.Sc. in Geodesy and Geoinformation Science
Technical University of Berlin, Germany
Thesis: The Use of Multi Resolution Active Shape Models
for Face Detection
Supervisor: Prof. Dr.-Ing. Olaf Hellwich
⊞ Oct 2009 - Mar 2012

B.Sc. in Geomatics and Geoinformatics Engineering
Athens University of Applied Sciences, Greece
Thesis: 3D Reconstructions from Uncalibrated Image Pair
Supervisor: Prof. Elli Petsa
⊞ Sep 2005 - Sep 2009

M.A. in Classical Piano Performance (Soloist)
Nefeli Conservatory, Athens-Greece
⊞ Jun 2008

B.A. in Classical Composition
Nefeli Conservatory, Athens-Greece
⊞ Jun 2006

Expertise

3D Reconstructions
Video Object Segmentation
Deep Learning
Virtual & Augmented Reality

Key Skills

Quantitative
Presentations
Ability to work under pressure
Self-motivated
Adaptability
Teamwork

Languages

Greek (native)
English (fluent)
German (intermediate)

Memberships

- Institute of Electrical and Electronics Engineers (IEEE)
- The British Machine Vision Association (BMVA)
- The Computer Vision Foundation (CVF)
- Int'l Society for Photogrammetry & Remote Sensing (ISPRS)

Sports & Interests

- Swimming & 10K Road Runner
- Classical Piano Performance

Profile

An entrepreneur and qualified Computer Vision specialist with 7 years' R&D international experience on segmentation/matting of humans in video sequences, using Deep Learning & 3D content creation for VR/AR applications. Published numerous research related papers at top tier conferences. Research interests include, Deep Learning, Human Segmentation in Video Sequences, Probabilistic Graphical Models, 3D Reconstructions, Free Viewpoint Video.

Professional Experience

Co-Founder & Chief Scientist @ Volograms Ltd, Dublin-Ireland
A startup Company. Spin off venture creation from Trinity College Dublin, Ireland.
An innovative Virtual & Augmented Reality Technology Company. Responsible to lead all aspects of the Company's scientific development. Co-Director & member of the Board of Directors.
- Successfully contributed in raising seed capital (850k) from Private & Public VCs, Atlantic Bridge & Enterprise Ireland, respectively.
⊞ May 2018 - Present

Postdoctoral Research Fellow @ Trinity College Dublin
Graphics Vision & Visualisation Group
An integral research member of the research project "V-SENSE: Extending visual Sensation through Image-based Visual Computing", led by Prof. Aljosa Smolic
- Successfully published papers in top tier conferences
- Conducted research in the areas of natural image matting & 3D reconstruction for volumetric video
- Assisted in the planning & organisation of lectures/demos
- Supervised Master and PhD students
⊞ Sep 2016 - Apr 2018

Software Engineer @ Siemens, Berlin-Germany
Mobility Division, Technology & Innovation
Responsible for the development of 3D Object recognition algorithms for Augmented Reality Products to be used for robustly detecting & recognizing a variety of objects in a Siemens Vectron Locomotive from cameras embedded in different devices, such as tablets and mobile phones.
- Developed 3D object recognition algorithms for registering CAD models of different objects in a Kinect-like point cloud
- Developed a tool for placing different content within a 3D sparse map generated by a SLAM algorithm
- Calibrated various RGB sensors for improving the quality of the map creation & camera pose estimation during augmentation & tracking
- Evaluated the accuracy of different SLAM algorithms

Research Associate @ Humboldt Innovation GmbH, Berlin-Germany
Short term project between IQ Wireless and HU Berlin
- Corrected systematic errors of a static camera through bundle adjustment
⊞ Dec 2015 - Jun 2016

Research Associate @ Humboldt University of Berlin-Germany
Computer Vision Group
- Developed 3D human recognition algorithms for the purpose of monitoring and tracking people's behavior in a train wagon
- Participated in the software development of the visual programming

Computer & Programming Skills

- Operating Systems ....Unix, Windows
- Programming Languages ....C/C++, Python
- Script Languages ....MATLAB
- C++ Libraries ....Boost, OpenMP
- Optimization/Maths Frameworks...Ceres, Eigen, FADBAD
- Computer Vision Frameworks........OpenCV/MVS/MVG/PCL
- AR Frameworks ....MetaioSDK
- Revision Control Systems ....Git, SVN
- Build Systems............................CMake
- Computer Graphics APIs ....OpenGL (basic)
- User Interfaces...........................Qt5 (basic)
- Robotics Frameworks..................ROS (basic)
- Unit Testing ....Google Tests
- Typesetting ....LaTeX

Honours/Awards

- Art & Design Competition NEM Summit 2017, Spain
  1st prize for "Virtual Play: after Samuel Beckett"
- Reading group competition, ICVSS 2017
  "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

Certifications

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

Additional Development & Training

- From Representation to Action & Interaction
Int'l Computer Vision Summer School, Sicily-Italy
  Jul 2017

- Drones applied to Cultural Heritage & Archaeology
Int'l Summer School, Pontignano, Siena-Italy
  Sep 2013

Research Grants

2017 NVIDIA Corp., GPU Grant, Tesla XP GPU card
  July 2017

Professional Experience / continued

- Implemented a real time tracking system for detection and tracking of pedestrians in the main campus of the Charité University Hospital
- 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
  Jul 2012 - Jun 2016

Academic Services

Reviewer (Journals)

- IEEE Image Understanding Journal
- EURASIP Journal on Image and Video Processing
- ISPRS Journal of Photogrammetry and Remote Sensing

Reviewer (Conferences)

- European Signal Processing Conference, 2018
- International Society for Photogrammetry and Remote Sensing, 2016
- International Conference on Computer Vision Theory and Applications, 2016

Session Chair

- International Conference on Computer Vision Theory & Applications 2015, 2016

Invited Speaker

- 3DCamp Dublin & Irish VR Meetup, Dublin, 2017
  Dynamic Content for VR/AR Applications
- Beuth Hochschule, School of Applied Sciences, Berlin, 2016
  Human Recognition in RGBD combining Object Detectors & Conditional Random Fields

Guest Class Lecturer

- Athens University of Applied Sciences, 2017
  Free Viewpoint Video for AR/VR Applications
- Technical University of Berlin, 2016
  3D Human Recognition in RGBD using CRFs
- Athens University of Applied Sciences, 2014
  Monitoring the spatio-temporal of Human Actions

Supervising Students

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

Teaching Experience

Trinity College Dublin

- Computer Vision (Module CSGV1 - ACAD. Term 2016-2017)
- Augmented Reality (Module CS7034 - ACAD. Term 2016-2017)
- Computer Vision (Module CS4053 - ACAD. Term 2016-2017)
- Vision Systems (Module CS7008 - ACAD. Term 2016-2017)
- Computer Graphics (Module CS4052 - ACAD. Term 2016-2017)

Humboldt University of Berlin

- Stereo Vision (Module 32313 - ACAD. Winter terms 2012-2016)

References

Prof. Aljosa Smolic
SFI Research Professor of Creative Technologies at Trinity College Dublin
smolica@tcd.ie

Prof. Ralf Reulke
Institute of Computer Science, Humboldt University of Berlin
reulke@informatik.hu-berlin.de