Grigorios Kalliatakis

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RESEARCH INTERESTS

My research interests span the areas of computer vision and deep learning. I have a specific interest in image interpretation, scene understanding, visual explanations, and image analysis in the context of human rights.

EDUCATION

09/2015 - 11/2019 **University of Essex**, Colchester, UK
PhD in Computer Science
Thesis: Visual Recognition of Human Rights Violations
Advisor: Klaus McDonald-Maier

08/2014 - 06/2015 **University of Burgundy**, Burgundy, France
MSc in Computer Vision
Upper Second Class
Dissertation: Towards an Automatic Intelligible Monitoring of Behavioral and Physiological Metrics of User Experience
Advisors: Cedric Demonceaux, Vidakis Nikolaos and Triantafyllidis Georgios

09/2013 - 06/2015 **Technological Educational Institute of Crete**, Crete, Greece
MSc in Informatics and Multimedia
First Class

09/2007 - 06/2013 **Technological Educational Institute of Crete**, Crete, Greece
BSc in Applied Informatics and Multimedia
First Class

AWARDS AND HONOURS

09/2018 Excellence in Education Award for the development of the Essex CSEE challenge week

09/2015 - 09/2018 Doctoral scholarship, Computer Science & Electronic Engineering, University of Essex

09/2013 - 09/2015 Postgraduate scholarship by the State Scholarships Foundation-IKY, Greece

RESEARCH EXPERIENCE

09/2018 - Present **Senior Research Officer**, The Human Rights, Big Data and Technology (HRBDT) Project, Human Rights Centre, University of Essex, UK.

- Develop computer vision algorithms for recognising human rights violations through images
- Research lead for the Omdena Challenge on *climate anomalies and forced displacement* set by UNHCR Innovation

09/2012 - Present **Collaborating Researcher**, Natural interactive Learning Edification Games Laboratory (NiLE-lab), Hellenic Mediterranean University, Greece.

- Develop algorithms for multimodal sensing and natural user interfaces
- Develop web-based visualisations for educational ecosystems

02/2015 - 06/2015 **Research Internship**, Interactive Software Technologies & System Engineering Laboratory (iSTLab), Hellenic Mediterranean University, Greece.

- Proposed a novel framework for monitoring human activity in serious games using depth data [C4, IP2]

05/2012 - 10/2012 **Research Assistant**, Intelligent Systems Laboratory, Hellenic Mediterranean University, Greece. Advisor: Nikolaos Vidakis.

- Developed algorithms for simultaneous video and sound recording of three fish species in controlled environment

PEER-REVIEWED PUBLICATIONS

CONFERENCE PAPERS

C.11 Alexandros Stergiou, Georgios Kapidis, **Grigorios Kalliatakis**, Christos Chrysoulas, Remco Veltkamp, Ronald Poppe. Class Feature Pyramids for Video Explanation, to appear in *International Conference on Computer Vision (ICCV) Workshops*, Seoul, Korea, October 2019.

C.10 **Grigorios Kalliatakis**, Shoaib Ehsan, Maria Fasli, Klaus McDonald-Maier. DisplaceNet: Recognising Displaced People from Images by Exploiting Dominance Level. *Proceedings of IEEE Conference on Computer Vision and Pattern Recognition (CVPR) Workshops*, Long Beach California, June 2019.

C.9 Alexandros Stergiou, Georgios Kapidis, **Grigorios Kalliatakis**, Christos Chrysoulas, Remco Veltkamp, Ronald Poppe. Saliency Tubes: Visual Explanations for Spatio-Temporal Convolutions. *Proceedings of IEEE International Conference on Image Processing (ICIP)*, Taipei, Taiwan, September 2019.

C.8 Somdip Dey, **Grigorios Kalliatakis**, Sangeet Saha, Amit Kumar Singh, Shoaib Ehsan, Klaus McDonald-Maier. MAT-CNN-SOPC: Motionless Analysis of Traffic Using Convolutional Neural Networks on System-On-a-Programmable-Chip. *Proceedings of NASA/ESA Conference on Adaptive Hardware and Systems (AHS)*, Edinburgh, UK, August 2018.

C.7 **Grigorios Kalliatakis**, Anca Sticlaru, George Stamatiadis, Shoaib Ehsan, Aleš Leonardis, Juergen Gall, Klaus McDonald-Maier. Material Classification in the Wild: Do Synthesized Training Data Generalise Better than Real-world Training Data? *Proceedings of the 13th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, Madeira, Portugal, January 2018.

C.6 **Grigorios Kalliatakis**, Shoaib Ehsan, Maria Fasli, Aleš Leonardis, Juergen Gall, Klaus McDonald-Maier. Detection of Human Rights Violations in Images: Can Convolutional Neural Networks Help? *Proceedings of the 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, Porto, Portugal, February 2017.

C.5 **Grigorios Kalliatakis**, George Stamatiadis, Shoaib Ehsan, Aleš Leonardis, Juergen Gall, Anca Sticlaru, Klaus McDonald-Maier. Evaluating Deep Convolutional Neural Networks for Material Classification. *Proceedings of the 12th International Joint Conference on Computer Vision, Imaging and Computer Graphics Theory and Applications (VISAPP)*, Porto, Portugal, February 2017.

C.4 **Grigorios Kalliatakis**, Nikolaos Vidakis, Georgios Triantafyllidis.Web-based visualisation of head pose and facial expressions changes: Monitoring human activity using depth data. *Proceedings of 8th Computer Science and Electronic Engineering Conference (CEEC)*, University of Essex, September 2016.

C.3 **Grigorios Kalliatakis**, Georgios Triantafyllidis, Nikolaos Vidakis. Head Pose 3D Data Web-based Visualization. *Proceedings of the 20th International Conference on 3D Web Technology*, Heraklion, Crete, Greece, June 2015.

C.2 Nikolas Vidakis, Anastasios Vlasopoulos, Tsampikos Kounalakis, Petros Varchalamas, Michalis Dimitriou, **Grigorios Kalliatakis**, Efthimios Syntychakis, John Christofakis, Georgios Triantafyllidis. Multimodal Desktop Interaction: The Face – Object - Gesture – Voice Example. *Proceedings of the 18th International Conference on Digital Signal Processing (DSP)*, Santorini, Greece, Jule 2013.

C.1 **Grigorios Kalliatakis**, Tsampikos Kounalakis, Georgios Papadourakis, Georgios Triantafyllidis. Image-based touristic monument classification using graph based visual saliency and scale-invariant feature transform. *Proceedings of the 13th IASTED International Conference on Computer Graphics and Imaging*, Crete, Greece, June 2012.

JOURNAL ARTICLES

J.2 **Grigorios Kalliatakis**, Shoaib Ehsan, Aleš Leonardis, Maria Fasli, Klaus McDonald-Maier. Exploring Object-centric and Scene-centric CNN Features and their Complementarity for Human Rights Violation Recognition in Images. *IEEE Access*, January 2019.

J.1 Alexandros Stergiou, **Grigorios Kalliatakis**, Christos Chrysoulas. Traffic Sign Recognition based on Synthesised Training Data. *Big Data and Cognitive Computing*, July 2018.

WORKSHOP PAPERS

W.1 **Grigorios Kalliatakis**, Shoaib Ehsan, Klaus D McDonald-Maier. A Paradigm Shift: Detecting Human Rights Violations Through Web Images. *Human Rights Practice in the Digital Age Workshop*, University of Cambridge, March 2017.

PAPERS UNDER REVIEW

UR.1 **Grigorios Kalliatakis**, Shoaib Ehsan, Maria Fasli, Klaus D McDonald-Maier. GET-AID: Visual Recognition of Human Rights Abuses via Global Emotional Traits. Currently available as *preprint arXiv:1902.03817*.

INVITED PUBLICATIONS

BOOK CHAPTERS

B.1 Christos Chrysoulas, **Grigorios Kalliatakis**, Georgios Stamatiadis. Hadoop and what it is good for. *Machine Learning: Advances in Research and Applications*, Nova Science Publishers, (pp. 177-194), October 2017.

INVITED PAPERS

IP.2 **Grigorios Kalliatakis**, Alexandros Stergiou, Nikolas Vidakis. Conceiving Human Interaction by Visualising Depth Data of Head Pose Changes and Emotion Recognition via Facial Expressions. *Computers*, July 2017.

IP.1 **Grigorios Kalliatakis**, Georgios Triantafyllidis. Image based Monument Recognition using Graph based Visual Saliency. *ELCVIA: Electronic Letters on Computer Vision and Image Analysis*, 2013.

INVITED TALKS

- Leveraging Computer Vision for Visual Recognition of Human Rights Abuses. *International Conference on Digital Image and Signal Processing (DISP)*, Oxford, UK, April 2019.
- Image Representations for Visual Recognition of Human Rights Violations. *Experts' Meeting on Digital Image Authentication and Classification*, organized by OHCHR, Geneva, Switzerland, December 2017. Experts advice to UNHCR and OHCHR.
- Visual Recognition of Human Rights Violations. *Workshop on Finding the nexus between climate change, conflict and forced displacement*, University of Essex, UK, March 2019.

SERVICE

ORGANIZING COMMITTEE

- EAI International Conference on Design, Learning & Innovation, 2017
- 9th Computer Science & Electronic Engineering Conference (CEEC), 2017

REVIEWER

- IEEE Transactions on Image Processing, 2019
- IEEE Transactions on Cognitive and Developmental Systems, 2019
- IEEE Access, 2019
- Applied Sciences, 2019
- Multimodal Technologies and Interaction (MTI), 2017
- ArtsIT & DLI, 2017
- 3DTV Conference, 2017-2018
- 6th EAI International Conference: ArtsIT, Interactivity & Game Creation

TEACHING EXPERIENCE

TEACHING ASSISTANT

- Technological Educational Institute (TEI) of Crete – Digital Image Processing (Winter 2012)

GRADUATE LAB ASSISTANT

- University of Essex CE101 – Team Project Challenge [formerly known as Professional Development] (Full Academic Year 2016-17, 2017-18)

MEDIA COVERAGE

June 26, 2017 — Human rights violations could be identified by computer vision system, E&T News

June 22, 2017 — World's first computer-vision system to identify human rights abuse *featured in University of Essex News*

March 25, 2017 — Detection of Human Rights Violations in Images: Can Convolutional Neural Networks help? [C6] was highlighted as one of the most thought-provoking papers from the Physics arXiv, *featured in MIT Technology review*

REFERENCES

Available upon request