



25th International Conference on MultiMedia Modeling

January 8-11, 2019

MMM 2019

**Mediterranean Palace
Thessaloniki, Greece**

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Welcome from Chairs

Welcome to the 25th International Conference on MultiMedia Modeling (MMM 2019) in Thessaloniki, Greece.

Now in its 25th year, the International MultiMedia Modeling Conference is a leading international conference for researchers and industry practitioners for sharing new ideas, original research results and practical development experiences from all MMM-related areas. The topics covered in MMM 2019 fall into three broad categories: multimedia content analysis; multimedia signal processing and communications; and multimedia applications and services.

MMM 2019 received a total of 204 valid submissions across five categories; 172 full-paper regular and special session submissions, eight demonstration submissions, eight industry session submissions, six submissions to the Video Browser Showdown (VBS 2019), and ten workshop paper submissions. All submissions were reviewed by at least two and, in most cases, three members of the Program Committee, and were carefully meta-reviewed by the TPC chairs or the organizers of each special event before making the final accept/reject decisions. Of the 172 full papers submitted, 49 were selected for oral presentation and 47 for poster presentation. In addition, six demonstrations were accepted from eight submissions, five industry papers from eight submissions, six workshop papers from ten submissions, and all six submissions to VBS 2019. Overall, the program of MMM 2019 includes 119 contributions presented in oral, poster, or demo form.

MMM conferences traditionally include special sessions that focus on addressing new challenges for the multimedia community; five special sessions are held in the 2019 edition of the conference. In addition, this year's MMM hosts a workshop as part of its program. Together with the conference's three invited keynote talks and two tutorials, one industry session, and the Video Browser Showdown, these events result in a rich program extending over four conference days.

The five special sessions of MMM 2019 are:

- SS1: Personal Data Analytics and Lifelogging
- SS2: Multimedia Analytics: Perspectives, Tools, and Applications
- SS3: Multimedia Datasets for Repeatable Experimentation
- SS4: Large-Scale Big Data Analytics for Online Counter-Terrorism Applications
- SS5: Time-Sequenced Multimedia Computing and Applications

The workshop hosted as part of the MMM 2019 program is:

- Third International Workshop on coMics ANalysis, Processing and Understanding (MANPU)

We wish to thank the authors of all submissions for sending their work to MMM 2019; and, we owe a debt of gratitude to all the members of the Program Committee and all the special events organizers (Special Sessions, Industry Session, Workshop, VBS) for contributing their valuable time to reviewing these submissions and otherwise managing the organization of all the different sessions.

We would also like to thank our invited keynote speakers, Daniel Gatica-Perez from the IDIAP Research Institute and Ecole Polytechnique Federale de Lausanne (EPFL), Switzerland, Martha Larson from Radboud University Nijmegen and Delft University of Technology, The Netherlands, and Andreas Symeonidis from the Aristotle University of Thessaloniki, Greece, for their stimulating contributions. Similarly, we thank our tutorial speakers, Lucio Tommaso De Paolis from the University of Salento, Italy, and Xavier Giro-i-Nieto from the Universitat Politecnica de Catalunya, for their in-depth coverage of specific multimedia topics.

Finally, special thanks go to the MMM 2019 Organizing Committee members, our proceedings publisher (Springer), and the Multimedia Knowledge and Social Media Analytics Laboratory of CERTH-ITI – both our local organization and support team, and the conference volunteers – for their hard work and support in taking care of all tasks necessary for ensuring a smooth and pleasant conference experience at MMM 2019.

We hope that the MMM 2019 participants will find the conference program and its insights interesting and thought-provoking, and that the conference will provide everyone with a good opportunity to share ideas on MMM-related topics with other researchers and practitioners from institutions around the world!

Ioannis Kompatsiaris, CERTH-ITI, **Benoit Huet**, EURECOM, General Chairs

Vasileios Mezaris, CERTH-ITI, **Cathal Gurrin**, Dublin City University, **Wen-Huang Cheng**, National Chiao Tung University, Taiwan, Program Chairs

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Special Sessions, Industry Session, and Workshop Organizers

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Duc Tien Dang Nguyen	Dublin City University, Ireland
Mariella Dimiccoli	Computer Vision Centre, Universitat de Barcelona, Spain
Cathal Gurrin	Dublin City University, Ireland

SS2: Multimedia Analytics: Perspectives, Tools, and Applications

Björn Þór Jónsson	IT University of Copenhagen, Denmark
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Stevan Rudinac	University of Amsterdam, The Netherlands

SS3: Multimedia Datasets for Repeatable Experimentation

Cathal Gurrin	Dublin City University, Ireland
Duc-Tien Dang-Nguyen	Dublin City University, Ireland
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Björn Þór Jónsson IT	University of Copenhagen, Denmark
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Luca Piras	University of Cagliari, Italy

SS4: Large-Scale Big Data Analytics for Online Counter-Terrorism Applications

Georgios Th. Papadopoulos	Centre for Research and Technology Hellas, Greece
Ernesto La Mattina	Engineering Ingegneria Informatica SpA, Italy
Apostolos Axenopoulos	Centre for Research and Technology Hellas, Greece

SS5: Time-Sequenced Multimedia Computing and Applications

Bing-Kun Bao	Nanjing University of Posts and Telecommunications, China
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Changsheng Xu	Institute of Automation, Chinese Academy of Sciences, China

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Carlo Regazzoni	University of Genoa, Italy
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M. Haroon Yousaf	UET Taxila, Pakistan
Qiao Wang	SouthEast University, China

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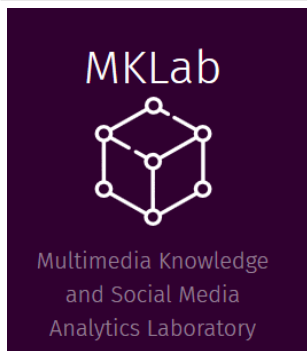
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Keynote talk 1

Cities in the Global South and Multimedia

Prof. Daniel Gatica-Perez

IDIAP Research Institute and Ecole Polytechnique
Federale de Lausanne (EPFL), Switzerland



Abstract

Social media and other sources of crowdsourced data create unique opportunities to study cities at scale. However, very little work has been done so far in multimedia research to understand urban phenomena outside North America and Europe, even though 80 of the largest 100 urban areas worldwide are in Latin America, Asia, and Africa. I will argue that studying these cities through people-contributed data and AI-driven analytics should become a priority for the multimedia community. The talk will discuss examples of our work in this domain, and invite the audience to join our multidisciplinary agenda for future work.

Bio

Daniel Gatica-Perez directs the Social Computing Group at Idiap and EPFL in Switzerland. His research integrates theories and methods from ubiquitous computing, social media, machine learning, and social sciences to understand human and social behavior in everyday life. His current work includes mobile crowdsensing in cities and analysis of mobile social media, smartphone data, and open data. His research has been supported by the Swiss National Science Foundation, the European Commission, and several industry partners. He also works with cities and local organizations in social innovation projects.

Keynote talk 2

Upon assessing the software quality of open source multimedia tools

Prof. Andreas Symeonidis

Aristotle University of Thessaloniki, Greece



Abstract

Consider that you need a data visualization API that allows you to project findings on a huge social graph. Or that you need a library that performs basic image and video processing tasks, so that you apply your largest scale concept. Or even you need to develop an application that initially performs ASR in order to provide personalized services to elderly people in Greece. In all these cases you may develop everything from scratch (obviously a bad choice), or you can select from a number of tools/libraries/APIs already residing in open source repositories. Then you would have to learn how to use/embed (each and every one of them), integrate them in your own project and test that everything works smoothly. Wrong selection of components will inevitably lead to great delays or even failure, and this is something that you surely would like to avoid...

The talk will provide an overview of the modern open source multimedia tools landscape, from the perspective of reusability, maintainability and developer perceived quality. It will discuss the popularity of tools/libraries/APIs with respect to the development context they are used (desktop/server/mobile) and will provide useful insight on how to select the proper component for the right job.

Bio

Dr. Andreas L. Symeonidis is an Associate Professor with the Department of Electrical and Computer Engineering at the Aristotle University of Thessaloniki, Greece and the Chief Research Officer at Cyclopt.com. His research interests include Software engineering processes, Model-driven engineering, Software quality and Software analytics, Middleware Robotics and Knowledge extraction from big data repositories. Dr. Symeonidis' work has been published in over 100 papers, book chapters, and conference publications. He is co-author of the books "Agent Intelligence through Data Mining" (Springer publishing) and "Practical Machine Learning in R" (Leanpub publishing). He has been Project Coordinator of S-CASE (FP7-ICT-610717) and RAPP (FP7-ICT-610947) and Technical lead in H2020 projects

SEAF (H2020-696023) and Mobile Age (H2020-693319). He is currently coordinating more than 10 contract R&D projects.

More at: <http://users.auth.gr/symeonid>

Keynote talk 3

New views on multimedia data: Privacy and other reasons for research on data minimization

Prof. Martha Larson

Radboud University Nijmegen and Delft University of Technology, Netherlands



Abstract

Conventionally, multimedia researchers have adhered to the maxim “There is no data like more data”. However, the new General Data Protection Regulation, which came into force in Europe in 2018, has caused the data science world to shift its perspective. If there are constraints on how data can be gathered and used, then researchers must adapt themselves to design effective algorithms and systems under those constraints. In this talk, we look at how “data greed” has characterized past research on analyzing multimedia content and discover why it is time to revisit our assumption that more data will lead to better performance of algorithms. The talk covers examples of research on data dropping and data bleaching that make the case for the potential of data minimization, and motivation the need for future work in that direction. Finally, we point out that techniques focusing on how to perturb or remove information in multimedia data have a potential to protect the privacy of users, without requiring them to stop sharing their images and videos online.

Bio

Martha Larson works in the area of multimedia retrieval and recommender systems. She is a professor at Radboud University in the area of Multimedia Information Technology and is also affiliated with the Multimedia Computing Group at Delft University of Technology. Previously, she researched and lectured in the area of audio-visual retrieval at Fraunhofer IAIS and at the University of Amsterdam. Larson is co-founder of the MediaEval Benchmarking Initiative for Multimedia Evaluation. She is currently leading the “Pixel Privacy” project, a small grant from the Netherlands Organization for Scientific Research focused on laying groundwork for new research in multimedia privacy online. From 2013-2016, she was scientific coordinator of CrowdRec, a European project on combining crowdsourcing and recommender systems. She has just completed a term of service as Associated Editor for IEEE Transactions on

Multimedia. Recently, she has been Area Chair at ACM Multimedia, TPC Chair at ACM ICMR, and Workshop Chair at ACM RecSys. In 2012, she was an Innovation Chair at IEEE ICME and organized a “Time Machine” session on the ongoing impact of early innovations. In 2016, she was a chair for Brave New Ideas at ACM Multimedia, with the theme “Societal Impact of Multimedia Research”.

Tutorial 1

Multimodal Deep Learning

Prof. Xavier Giro-i-Nieto

Universitat Politecnica de Catalunya in Barcelona

Abstract

Deep neural networks have boosted the convergence of multimedia data analytics in a unified framework shared by practitioners in natural language, vision and speech. Image captioning, lip reading or video sonorization are some of the first applications of a new and exciting field of research exploiting the generalization properties of deep neural representation. This tutorial will firstly review the basic neural architectures to encode and decode vision, text and audio, to later review the those models that have successfully translated information across modalities. The contents of this tutorial are available at: <https://telecombcn-dl.github.io/2019-mmm-tutorial/>.

Bio

Xavier Giro-i-Nieto is an associate professor at the Universitat Politecnica de Catalunya (UPC) in Barcelona, as member of the Intelligent Data Science and Artificial Intelligence Research Center (IDEAI-UPC) and also a visiting researcher at Barcelona Supercomputing Center (BSC). He works closely with the Insight Center of Data Analytics at Dublin City University and the Digital Video and MultiMedia at Columbia University, as well as his industrial partners at Vilynx, Mediapro, and Crisalix. He is the director of the postgraduate degree on Artificial Intelligence with Deep Learning at UPC School and coordinates the deep learning courses at UPC TelecomBCN, as well as general chair of the Deep Learning Barcelona Symposium 2018. He serves as associate editor at IEEE Transactions in Multimedia, and reviews for top tier conferences in machine learning, computer vision and multimedia.

Tutorial 2

New Trends of Simulation and Augmented Visualization in Medicine

Prof. Lucio Tommaso De Paolis

University of Salento in Italy

Abstract

In medicine and surgery the VR/AR technologies make available new tools for the definition of the diagnosis by translating the information contained in medical images into a 3-dimensional virtual representation of the patient that is a realistic replica of living patient with the actual pathologies. This has allowed the development of a new form of medical education and the use of patient-specific surgical simulators permit to train and rehearse the surgical procedures without any risks for the patient. New applications of the AR technology allow overlapping the 3D virtual models of the organs on the real patient during the intra-operative procedures in order to provide surgeon with a sort of “X-ray vision” of the patient’s internal anatomy. The use of augmented visualization in surgery has the potential to bring the advantages of the open-surgery visualization also in minimally invasive surgery, produces a better spatial perception and reduces the duration of the surgical procedure permitting to perform the tasks in a way that is faster and safer.

This tutorial will discuss:

- Virtual and Augmented Reality Technologies
- Virtual Reality in Medicine and Surgery
- Augmented Reality in Medicine and Surgery
- Interaction with Models of Patient’s Organs

Bio

Lucio Tommaso De Paolis has a Degree in Electronic Engineering from the University of Pisa (Italy) and is an Assistant Professor of Information Processing Systems at the Department of Innovation Engineering of the University of Salento (Italy). His research interest concerns the study of the design and development of applications of Virtual and Augmented Reality and Human-Computer Interaction in medicine and surgery, cultural heritage and education. De Paolis is the Director of the Augmented and Virtual Reality Laboratory (AVR Lab) at the Department of Engineering for Innovation of the University of Salento and the responsible of the

“Advanced Virtual Reality for Medicine” research group at the Laboratory of Interdisciplinary Research Applied to Medicine (DReAM) of the Hospital of Lecce, Italy. He is the vice-president of MIMOS (Italian Movement Modelling and Simulation) and the founder of AVR Med srl, a Spin-off company of the University of Salento. He teaches “Applications of Virtual and Augmented Reality” at the Master Degree in “Computer Engineering” of the University of Salento and at EUROMACHS (European Heritage, Digital Media and the Information Society). He has been a Visiting Professor in 2014 at the Tallinn University of Technology, in 2012 at the Vytautas Magnus University of Kaunas (Lithuania) and in 2011 at the University of Tallinn (Estonia). He has been visiting researcher in 2007 and 2010 at the Centro de Ciencias Aplicadas y Desarrollo Tecnológico (CCADET) of the Universidad Nacional Autónoma de México (UNAM), Mexico City (Mexico) and in 2007 and 2009 at the Computer Graphics Laboratory of the Sabanci University of Istanbul (Turkey). De Paolis has been the coordinator of some Italian and international projects focused on the application of Virtual and Augmented Reality in medicine, cultural heritage and education. He is the organizer of the International Conference on Augmented Reality, Virtual Reality and Computer Graphics (SALENTO AVR).

Video Browser Showdown

The Video Browser Showdown (VBS) is an annual live video search competition, where researchers evaluate and demonstrate the efficiency of their exploratory video retrieval tools on a shared data set in front of the audience. It is organized as a special session at the International Conference on MultiMedia Modeling (MMM) since 2012. In this special session the participating teams start with a quick presentation of their video search systems and then perform several video retrieval tasks within a large video collection.

More details on the Video Browser Showdown can be found in the VBS website (<http://www.videobrowsershowdown.org/>).

January 8		Conference Day 1	
08:30-09:30	Registration <i>1st floor foyer</i>		
09:30-11:00	<u>Tutorial 1</u> <i>Poseidon A+C (1st floor)</i>	<u>MANPU Workshop</u> <i>Poseidon B (1st floor)</i>	
11:00-11:15	Coffee break <i>1st floor foyer</i>		
11:15-12:45	<u>Tutorial 1 (cont.)</u> <i>Poseidon A+C (1st floor)</i>	<u>MANPU Workshop</u> <i>Poseidon B (1st floor)</i>	
12:45-13:45	Lunch break <i>1st floor foyer</i>		
13:45-15:15	<u>Tutorial 2</u> <i>Poseidon A+C (1st floor)</i>	<u>MANPU Workshop</u> <i>Poseidon B (1st floor)</i>	<u>VBS rehearsal and closed session</u> <i>Dias (7th floor)</i>
15:15-15:30	Coffee break <i>1st floor foyer</i>		
15:30-17:00	<u>Tutorial 2</u> <i>Poseidon A+C (1st floor)</i>	<u>MANPU Workshop</u> <i>Poseidon B (1st floor)</i>	<u>VBS rehearsal and closed session</u> <i>Dias (7th floor)</i>

Tutorial 1 **09:30-12:45**

Location: Poseidon A+C (1st floor)

09:30-12:45 **Multimodal Deep Learning**

Prof. Xavier Giro-i-Nieto, Universitat Politecnica de Catalunya in Barcelona

Tutorial 2 **13:45-17:00**

Location: Poseidon A+C (1st floor)

13:45-17:00 **New Trends of Simulation and Augmented Visualization in Medicine**

Prof. Lucio Tommaso De Paolis, University of Salento in Italy

VBS rehearsal and closed session **13:45-17:00**

Location: *Dias (7th floor)*

13:45-17:00 **VBS internal session**

MANPU Workshop **09:30-17:00**

Location: *Poseidon B (1st floor)*

09:30-11:00 **MANPU Opening and Invited Talk**

09:30-09:40 **Opening**

09:40-10:40	Invited Talk
10:40-11:00	Q&A with invited speaker
11:15-12:45	MANPU Oral Session 1
11:15-11:45	Rita Hartel and Alexander Dunst. "How good is good enough?" Establishing quality thresholds for the automatic text analysis of retro-digitized comics
11:45-12:15	Frédéric Rayar and Seiichi Uchida. Comic text detection using neural network approach
12:15-12:45	Miki Ueno. Structure Analysis on Common Plot in Four-Scene Comic Story Dataset
13:45-15:15	MANPU Oral Session 2
13:45-14:15	Nhu Van Nguyen, Christophe Rigaud, and Jean-Christophe Burie. Multi-task model for comic book image analysis
14:15-14:45	Byeongseon Park and Mitsunori Matsushita. Estimating Comic Content from The Book Cover Information Using Fine-Tuned VGG Model
14:45-15:15	Jochen Laubrock and David Dubray. CNN-based Classification of Illustrator Style in Graphic Novels: Which Features Contribute Most?
15:30-17:00	MANPU Discussion and Closing Session
15:30-16:30	Discussion session
16:30-16:40	Closing

08:00-09:00	Registration <i>7th floor foyer</i>	
09:00-09:20	Conference Opening <i>Dias (7th floor)</i>	
09:20-10:20	<u>Keynote Talk 1</u> <i>Dias (7th floor)</i>	
10:20-10:50	Coffee break <i>7th floor foyer</i>	
10:50-12:30	<u>Oral Session 1</u> Best Paper Session <i>Dias (7th floor)</i>	
12:30-13:30	Lunch break <i>7th floor foyer</i>	
13:30-15:10	<u>Oral Session 2A</u> Special Session 2 – MAPTA <i>Poseidon A+C (1st floor)</i>	<u>Oral Session 2B</u> 3D & VR <i>Dias (7th floor)</i>
15:10-16:00	Coffee break <i>7th floor foyer</i>	Video Browser Showdown Setup <i>Dias (7th floor)</i>
16:00-19:00	<u>Video Browser Showdown & welcome reception</u> <i>Dias (7th floor)</i>	

Keynote Talk 1**09:20-10:20****Location:** *Dias (7th floor)*

09:20-10:20

Cities in the Global South and Multimedia

Prof. Daniel Gatica-Perez, IDIAP Research Institute and
Ecole Polytechnique Federale de Lausanne (EPFL) in
Switzerland

Oral Session 1: Best Paper Session**10:50-12:30****Location:** *Dias (7th floor)*

10:50-11:10

Junyi Wang, Bing-Kun Bao, and Changsheng Xu.
Sentiment-aware Multi-modal Recommendation on
Tourist Attractions

11:10-11:30

Kai-jun Zhang, Cheng-Hao Guo, Zhong-Han Niu, Lu-Fei
Liu, and Yu-Bin Yang. SCOD: Dynamical Spatial
Constraints for Object Detection

11:30-11:50

Guang Chen, Yuexian Zou, and Can Zhang. STMP: Spatial
Temporal Multi-level Proposal Network for Activity
Detection

11:50-12:10

Junchao Zhang and Yuxin Peng. Hierarchical Vision-
Language Alignment for Video Captioning

12:10-12:30

Alexander Kupin, Benjamin Moeller, Yijun Jiang, Natasha
Kholgade Banerjee, and Sean Banerjee. Task-Driven
Biometric Authentication of Users in Virtual Reality (VR)
Environments

Oral Session 2A: Special Session 2 - MAPTA**13:30-15:10****Location:** *Poseidon A+C (1st floor)*

- 13:30-13:40 Manuel Stein, Daniel Seebacher, Tassilo Karge, Tom Polk, Michael Grossniklaus, and Daniel A. Keim. From Movement to Events: Improving Soccer Match Annotations
- 13:40-13:50 Lyndon Nixon, Evlampios Apostolidis, Foteini Markatopoulou, Ioannis Patras, and Vasileios Mezaris. Multimodal Video Annotation for Retrieval and Discovery of Newsworthy Video in a News Verification Scenario
- 13:50-14:00 Snorri Gíslason, Björn Þór Jónsson, and Laurent Amsaleg. Integration of Exploration and Search: A Case Study of the M³ Model
- 14:00-14:10 Werner Bailer. Face Swapping for Solving Collateral Privacy Issues in Multimedia Analytics
- 14:10-14:20 Alan F. Smeaton, Yvette Graham, Kevin McGuinness, Noel E. O'Connor, Seán Quinn, and Eric Arazo Sanchez. The Impact of Training Data Bias on Automatic Generation of Video Captions
- 14:20-15:10 Panel discussion

Oral Session 2B: 3D & VR**13:30-15:10****Location:** *Dias (7th floor)*

- 13:30-13:50 Lingyun Yu, Jun Yu, and Qiang Ling. Deep Neural Network Based 3D Articulatory Movement Prediction Using Both Text and Audio Inputs

- 13:50-14:10 Kyriaki Christaki, Emmanouil Christakis, Petros Drakoulis, Alexandros Doumanoglou, Nikolaos Zioulis, Dimitrios Zarpalas, and Petros Daras. Subjective Visual Quality Assessment of Immersive 3D Media Compressed by Open-Source Static 3D Mesh Codecs
- 14:10-14:30 Kedong Liu, Yanwei Liu, Jinxia Liu, Antonios Argyriou, and Ying Ding. Joint EPC and RAN Caching of Tiled VR Videos for Mobile Networks
- 14:30-14:50 Adam Siekawa, Michał Chwesiuk, Radosław Mantiuk, and Rafał Piórkowski. Foveated Ray Tracing for VR Headsets
- 14:50-15:10 Marek Wernikowski, Radosław Mantiuk, and Rafał Piórkowski. Preferred Model of Adaptation to Dark for Virtual Reality Headsets

Video Browser Showdown welcome reception and public session

16:00-19:00

Location: *Dias (7th floor)*

16:00-19:00 Klaus Schoeffmann, Bernd Münzer, Andreas Leibetseder, Jürgen Primus, and Sabrina Kletz. Autopiloting Feature Maps: The Deep Interactive Video Exploration (diveXplore) System at VBS2019

Giuseppe Amato, Paolo Bolettieri, Fabio Carrara, Franca Debole, Fabrizio Falchi, Claudio Gennaro, Lucia Vadicamo, and Claudio Vairo. VISIONE at VBS2019

Jakub Lokoč, Gregor Kovalčík, Tomáš Souček, Jaroslav Moravec, Jan Bodnár, and Přemysl Čech. VIRET Tool Meets NasNet

Stelios Andreadis, Anastasia Moutzidou, Damianos

Galanopoulos, Foteini Markatopoulou, Konstantinos Apostolidis, Thanassis Mavropoulos, Ilias Gialampoukidis, Stefanos Vrochidis, Vasileios Mezaris, Ioannis Kompatsiaris, and Ioannis Patras. VERGE in VBS 2019

Phuong Anh Nguyen, Chong-Wah Ngo, Danny Francis, and Benoit Huet. VIREO @ Video Browser Showdown 2019

Luca Rossetto, Mahnaz Amiri Parian, Ralph Gasser, Ivan Giangreco, Silvan Heller, and Heiko Schuldt. Deep Learning-based Concept Detection in vitriv

January 10	Conference Day 3	
09:00-09:20	Registration <i>7th floor foyer</i>	
09:20-10:20	<u>Keynote Talk 2</u> <i>Dias (7th floor)</i>	
10:20-10:50	Coffee break <i>7th floor foyer & 1st floor foyer</i>	
10:50-12:30	<u>Oral Session 3A</u> Special Session 1 – PDAL <i>Poseidon A+C (1st floor)</i>	<u>Oral Session 3B</u> MM Indexing and Mining <i>Dias (7th floor)</i>
12:30-13:30	Lunch break <i>7th floor foyer</i>	
13:30-15:10	<u>Oral Session 4A</u> Special Session 3 – MDRE <i>Poseidon A+C (1st floor)</i>	<u>Oral Session 4B</u> Deep Learning & Applications <i>Dias (7th floor)</i>
15:10-15:40	Coffee break <i>7th floor foyer</i>	
15:40-17:20	<u>Poster Session 1</u> Posters <i>Dias (7th floor)</i>	
20:00-23:00	Conference dinner 'Emilios Riadis' hall, in the HELEXPO exhibition space (about 30' walk from the conference venue)	

Keynote Talk 2**09:20-10:20**

Location: *Dias (7th floor)*

09:20-10:20 **Upon assessing the software quality of open source multimedia tools**

Prof. Andreas Symeonidis, Aristotle University of Thessaloniki, Greece

Oral Session 3A: Special Session 1 – PDAL**10:50-12:30**

Location: *Poseidon A+C (1st floor)*

10:50-11:00 Owen Corrigan and Suzanne Little. Fashion Police: Towards Semantic Indexing of Clothing Information In Surveillance Data

11:00-11:10 Yijun Jiang, Elim Schenck, Spencer Kranz, Sean Banerjee, and Natasha Kholgade Banerjee. CNN-Based Non-Contact Detection of Food Level in Bottles from RGB Images

11:10-11:20 Zhixiang Ji, Jie Tang, and Gangshan Wu. Personalized Recommendation of Photography based on Deep Learning

11:20-11:30 Xiaohua Wang, Muzi Peng, Lijuan Pan, Min Hu, Chunhua Jin, and Fuji Ren. Two-level Attention with Multi-task Learning for Facial Emotion Estimation

11:30-11:40 Aaron Duane and Cathal Gurrin. User Interaction for Visual Lifelog Retrieval in a Virtual Environment

11:40-12:30 Panel discussion

Oral Session 3B: MM Indexing and Mining**10:50-12:30****Location:** *Dias (7th floor)*

- 10:50-11:10 Shuhei Tsuchida, Satoru Fukayama, and Masataka Goto. Query-by-Dancing: A Dance Music Retrieval System Based on Body-Motion Similarity
- 11:10-11:30 Xuelin Zhu, Biwei Cao, Shuai Xu, Bo Liu, and Jiuxin Cao. Joint Visual-Textual Sentiment Analysis Based on Cross-modality Attention Mechanism
- 11:30-11:50 Chang Zhou, Lai-Man Po, Mengyang Liu, Wilson Y.F. Yuen, Peter H. W. Wong, Hon-Tung Luk, Kin Wai Lau, and Hok Kwan Cheung. Deep Hashing with Triplet Labels and Unification Binary Code Selection for Fast Image Retrieval
- 11:50-12:10 Martin Winter and Werner Bailer. Incremental Training for Face Recognition
- 12:10-12:30 Ke Sun, Zhuo Lei, Jiasong Zhu, Xianxu Hou, Bozhi Liu, and Guoping Qiu. Character Prediction in TV Series via a Semantic Projection Network

Oral Session 4A: Special Session 3 – MDRE**13:30-15:10****Location:** *Poseidon A+C (1st floor)*

- 13:30-13:40 Cathal Gurrin, Klaus Schoeffmann, Hideo Joho, Bernd Munzer, Rami Albatal, Frank Hopfgartner, Liting Zhou, and Duc-Tien Dang-Nguyen. A Test Collection for Interactive Lifelog Retrieval
- 13:40-13:50 Tomohiro Sato, Minh-Son Dao, Kota Kuribayashi, and Koji Zettsu. SEPLA: Challenges and Opportunities

Within Environment-Personal Health Archives

- 13:50-14:00 Theodoros Giannakopoulos, Margarita Orfanidi, and Stavros Perantonis. Athens Urban Soundscape (ATHUS): A Dataset for Urban Soundscape Quality Recognition
- 14:00-14:10 Luca Rossetto, Heiko Schuldt, George Awad, and Asad A. Butt. V3C - a Research Video Collection
- 14:10-15:10 Panel discussion

Oral Session 4B: Deep Learning & Applications

13:30-15:10

Location: *Dias (7th floor)*

- 13:30-13:50 Minho Park, Hak Gu Kim, and Yong Man Ro. Photo-realistic Facial Emotion Synthesis using Multi-level Critic Networks with Multi-level Generative Model
- 13:50-14:10 Xierong Zhu, Jiawei Liu, Hongtao Xie, and Zheng-Jun Zha. Adaptive Alignment Network for Person Re-identification
- 14:10-14:30 Yongchao Xu, Qizheng Yang, Chaoran Cui, Cheng Shi, Guangle Song, Xiaohui Han, and Yilong Yin. Visual Urban Perception with Deep Semantic-Aware Network
- 14:30-14:50 Zhuopeng Li and Xiaoyan Zhang. Deep Reinforcement Learning for Automatic Thumbnail Generation
- 14:50-15:10 Yu-Chieh Chen, Daniel Stanley Tan, Wen-Huang Cheng, and Kai-Lung Hua. 3D Object Completion via Class-conditional Generative Adversarial Network

Location: *Dias (7th floor)*

15:40-17:20 Konstantinos Apostolidis and Vasileios Mezaris. Image Aesthetics Assessment using Fully Convolutional Neural Networks

Markos Zampoglou, Fotini Markatopoulou, Gregoire Mercier, Despoina Touska, Evlampios Apostolidis, Symeon Papadopoulos, Roger Cozien, Ioannis Patras, Vasileios Mezaris, and Ioannis Kompatsiaris. Detecting Tampered Videos with Multimedia Forensics and Deep Learning

Boubacar Diallo, Thierry Urruty, Pascal Bourdon, and Christine Fernandez-Maloigne. Improving Robustness of Image Tampering Detection for Compression

Patrice Guyot, Thierry Malon, Geoffrey Roman-Jimenez, Sylvie Chambon, Vincent Charvillat, Alain Crouzil, André Péninou, Julien Pinquier, Florence Sèdes, and Christine Sénac. Audiovisual Annotation Procedure for Multi-view Field Recordings

Nan Ran, Longteng Kong, Yunhong Wang, and Qingjie Liu. A Robust Multi-Athlete Tracking Algorithm by Exploiting Discriminant Features and Long-Term Dependencies

Marios Krestenitis, Georgios Orfanidis, Konstantinos Ioannidis, Konstantinos Avgerinakis, Stefanos Vrochidis, and Ioannis Kompatsiaris. Early Identification of Oil Spills in Satellite Images Using Deep CNNs

Xu Cao and Katashi Nagao. Point Cloud Colorization Based on Densely Annotated 3D Shape Dataset

Nikolaos Bastas, Theodoros Semertzidis, Apostolos

Axenopoulos, and Petros Daras. evolve2vec: Learning Network Representations Using Temporal Unfolding

Dunja Vucic and Lea Skorin-Kapov. The Impact of Packet Loss and Google Congestion Control on QoE for WebRTC-based Mobile Multiparty Audiovisual Telemeetings

Can Zhang, Yuexian Zou, and Guang Chen. Hierarchical Temporal Pooling for Efficient Online Action Recognition

Xianyu Wu, Xiaojie Li, Jia He, Xi Wu, and Imran Mumtaz. Generative Adversarial Networks with Enhanced Symmetric Residual Units for Single Image Super-Resolution

Anastasia Ioannidou, Elisavet Chatzilari, Spiros Nikolopoulos, and Ioannis Kompatsiaris. 3D ResNets for 3D Object Classification

Xin Lai, Xirong Li, Rui Qian, Dayong Ding, Jun Wu, and Jieping Xu. Four Models for Automatic Recognition of Left and Right Eye in Fundus Images

Alexander Schindler and Andreas Rauber. On the unsolved problem of Shot Boundary Detection for Music Videos

Chao Liu, Yuexian Zou, and Dongming Yang. Enhancing Scene Text Detection via Fused Semantic Segmentation Network with Attention

Zhipeng Wu, Hui Tian, Xuzhen Zhu, Shaoshuai Fan, and Shuo Wang. Exploiting Incidence Relation Between Subgroups for Improving Clustering-Based Recommendation Model

Yirui Wu, Weigang Xu, Qinghan Yu, Jun Feng, and Tong Lu. Hierarchical Bayesian Network based Incremental Model for Flood Prediction

Dan Wang, Yun Sheng, and Guixu Zhang. A New Female Body Segmentation and Feature Localisation Method for Image-based Anthropometry

Ioannis Mademlis, Anastasios Tefas, and Ioannis Pitas. Greedy Salient Dictionary Learning For Activity Video Summarization

Jinzhong Lin, Junbiao Pang, Li Su, Yugui Liu, and Qingming Huang. Accelerating Topic Detection on Web for a Large-Scale Data Set via Stochastic Poisson Deconvolution

Siming Cui, Xuanjing Shen, and Yingda Lyu. Automatic Segmentation of Brain Tumor Image Based on Region Growing with Co-constraint

Nami Iino, Mayumi Shimada, Takuichi Nishimura, and Masatoshi Hamanaka. Proposal of an Annotation Method for Integrating Musical Technique Knowledge Using a GTTM Time-Span Tree

Wenliang Zeng, and Ji Liu. A Hierarchical Level Set Approach to for RGBD Image Matting

Wei-Ta Chu and Hao-An Chu. A Genetic Programming Approach to Integrate Multilayer CNN Features for Image Classification

Madhumita A. Takalkar, Haimin Zhang, and Min Xu. Improving Micro-Expression Recognition Accuracy using Twofold Feature Extraction

Li Yao, Ya Lin, Chunbo Zhu, and Zuolong Wang. An Effective Dual-fisheye Lens Stitching Method based on Feature Points

Xin Liu and Guoying Zhao. 3D Skeletal Gesture Recognition via Sparse Coding of Time-Warping Invariant

Riemannian Trajectories

Hengtong Hu, Richang Hong, Weijie Fu, and Meng Wang.
Efficient Graph Based Multi-view Learning

Jesús Jorrín and Luis Buera. DANTE Speaker Recognition
Module. An Efficient and Robust Automatic Speaker
Searching Solution for Terrorism-related Scenarios

January 11

Conference Day 4

09:00-09:20	Registration <i>7th floor foyer</i>	
09:20-10:20	<u>Keynote Talk 3</u> <i>Dias (7th floor)</i>	
10:20-10:50	Coffee break <i>7th floor foyer & 1st floor foyer</i>	
10:50-12:30	<u>Oral Session 5A</u> Special Session 4 – CTA <i>Poseidon A+C (1st floor)</i>	<u>Oral Session 5B</u> Audio & Speech <i>Dias (7th floor)</i>
12:30-13:30	Lunch break <i>7th floor foyer</i>	
13:30-15:10	<u>Oral Session 6A</u> Special Session 5 – TCMA <i>Poseidon A+C (1st floor)</i>	<u>Oral Session 6B</u> Industry Session <i>Dias (7th floor)</i>
15:10-15:40	Coffee break <i>7th floor foyer</i>	
15:40-17:20	<u>Poster Session 2</u> Posters and Demos (VBS systems will also be demonstrated in this session) <i>Dias (7th floor)</i>	
17:20-17:30	Conference Closing	

Keynote Talk 3**09:20-10:20**

Location: *Dias (7th floor)*

09:20-10:20

New views on multimedia data: Privacy and other reasons for research on data minimization

Prof. Martha Larson, Radboud University Nijmegen and Delft University of Technology in Netherlands

Oral Session 5A: Special Session 4 – CTA**10:50-12:30**

Location: *Poseidon A+C (1st floor)*

10:50-11:05

Luis Lebron Casas and Eugenia Koblents. Video Summarization with LSTM and Deep Attention Models

11:05-11:20

Jodie Gauvain, Lori Lamel, Viet Bac Le, Julien Despres, Jean-Luc Gauvain, Abdel Messaoudi, Bianca Vieru, and Waad Ben Kheder. Challenges in Audio Processing of Terrorist-related Data

11:20-11:35

George Kalpakis, Theodora Tsikrika, Stefanos Vrochidis, and Ioannis Kompatsiaris. Identifying Terrorism-related Key Actors in Multidimensional Social Networks

11:35-11:50

Alexander Schindler, Martin Boyer, Andrew Lindley, David Schreiber, and Thomas Philipp. Large Scale Audio-Visual Video Analytics Platform for Forensic Investigations of Terroristic Attacks

11:50-12:05

Andrea Ciapetti, Giulia Ruggiero, and Daniele Toti. A Semantic Knowledge Discovery Framework for Detecting Online Terrorist Networks

12:05-12:20

Konstantinos Gkountakos, Theodoros Semertzidis, Georgios Th. Papadopoulos, and Petros Daras. A

Oral Session 5B: Audio & Speech

10:50-12:30

Location: *Dias (7th floor)*

- 10:50-11:10 Rui Zhang, Ruimin Hu, Gang Li, and Xiaochen Wang. Spectral Tilt Estimation for Speech Intelligibility Enhancement using RNN based on All-pole Model
- 11:10-11:30 Dading Chong, Yuexian Zou, and Wenwu Wang. Multi-Channel Convolutional Neural Networks with Multi-level Feature Fusion for Environmental Sound Classification
- 11:30-11:50 Hirofumi Takamori, Takayuki Nakatsuka, Satoru Fukayama, Masataka Goto, and Shigeo Morishima. Audio-Based Automatic Generation of a Piano Reduction Score by Considering the Musical Structure
- 11:50-12:10 Alfonso Perez-Carrillo. Violin Timbre Navigator: Real-time Visual Feedback of Violin Bowing based on Audio Analysis and Machine Learning
- 12:10-12:30 Odette Scharenborg, Nikki van der Gouw, Martha Larson, and Elena Marchiori. The Representation of Speech in Deep Neural Networks

Oral Session 6A: Special Session 5 – TCMA

13:30-15:10

Location: *Poseidon A+C (1st floor)*

- 13:30-13:50 Tairan Zhang, Congyan Lang, and Junliang Xing. Realtime Human Segmentation in Video

13:50-14:10	Chunyang Li, Caiyan Jia, Zhineng Chen, Xiaoyan Gu, and Hongyun Bao. psDirector: An Automatic Director for Watching View Generation from Panoramic Soccer Video
14:10-14:30	Li Su, Pamela Cosman, and Qihang Peng. No-Reference Video Quality Assessment Based on Ensemble of Knowledge and Data-Driven Models
14:30-14:50	Jiajie Dai and Simon Dixon. Understanding Intonation Trajectories and Patterns of Vocal Notes

Oral Session 6B: Industry Session

13:30-15:10

Location: *Dias (7th floor)*

13:30-13:50	Nudrat Nida, Muhammad Haroon Yousaf, Aun Irtaza, and Sergio A. Velastin. Bag of Deep Features for Instructor Activity Recognition in Lecture Room
13:50-14:10	Srijan Das, Monique Thonnat, Kaustubh Sakhalkar, Michal Koperski, Francois Bremond, and Gianpiero Francesca. A New Hybrid Architecture for Human Activity Recognition from RGB-D videos
14:10-14:30	Tom Durand, Xiyan He, Ionel Pop, and Lionel Robinault. Utilizing Deep Object Detector for Video Surveillance Indexing and Retrieval
14:30-14:50	Mehryar Emambakhsh, Alessandro Bay, and Eduard Vazquez. Deep Recurrent Neural Network for Multi-target Filtering
14:50-15:10	Renjie Xie, Yuancheng Wang, Tian Xie, Yuhao Zhang, Li Xu, Jian Lu, and Qiao Wang. Adversarial Training for Video Disentangled Representation

Poster Session 2: Posters and Demos**15:40-17:20**

(VBS systems will also be demonstrated in this session)

Location: *Dias (7th floor)***15:40-17:20**

Damianos Galanopoulos and Vasileios Mezaris.
Temporal Lecture Video Fragmentation using Word
Embeddings

Chaohao Lu and Yuexian Zou. Using Coarse Label
Constraint for Fine-grained Visual Classification

Danny Francis, Benoit Huet, and Bernard Merialdo.
Gated Recurrent Capsules for Visual Word Embeddings

Yisheng Yue, Palaiahnakote Shivakumara, Yirui Wu,
Liping Zhu, Tong Lu, and Umapada Pal. An Automatic
System for Generating Artificial Fake Character Images

Wenfeng Zhang, Zhiqiang Wei, Lei Huang, Jie Nie, Lei Lv,
and Guanqun Wei. Person Re-Identification Based on
Pose-aware Segmentation

Chih-Wei Lin and Qilu Ding. Neuropsychiatric Disorders
Identification using Convolutional Neural Network

Efstratios Kakaletsis, Maria Tzelepi, Pantelis I.
Kaplanoglou, Charalampos Symeonidis, Nikos Nikolaidis,
Anastasios Tefas, and Ioannis Pitas. Semantic Map
Annotation through UAV Video Analysis using Deep
Learning Models in ROS

Minglei Yang, Yan Song, Xiangbo Shu, and Jinhui Tang.
Temporal Action Localization Based on Temporal
Evolution Model and Multiple Instance Learning

Jia-Li Tao, Jian-Ming Zhang, Liang-Jun Wang, Xiang-Jun
Shen, and Zheng-Jun Zha. Near-duplicate Video Retrieval
through Toeplitz Kernel Partial Least Squares

Hongyang Li, Jun Chen, Ruimin Hu, Mei Yu, Huafeng Chen, and Zengmin Xu. Action Recognition Using Visual Attention with Reinforcement Learning

Junqing Yu, Aiping Lei, and Yangliu Hu. Soccer Video Event Detection Based on Deep Learning

Jinna Lv and Bin Wu. Spatio-Temporal Attention Model Based on Multi-View for Social Relation Understanding

Ting Wu, Qing Xu, Yunhe Li, Yuejun Guo, and Klaus Schoeffmann. Detail-Preserving Trajectory Summarization Based on Segmentation and Group-Based Filtering

Fang Wen, Zehang Lin, Zhenguo Yang, and Wenyin Liu. Single-Stage Detector with Semantic Attention for Occluded Pedestrian Detection

Xian Zhong, Meng Feng, Wenxin Huang, Zheng Wang, and Shin'ichi Satoh. Poses Guide Spatiotemporal Model for Vehicle Re-identification

Jui-Yuan Su, Shyi-Chyi Cheng, Chin-Chun Chang, and Jun-Wei Hsieh. Alignment of Deep Features in 3D Models for Camera Pose Estimation

Wenzhe Wang, Bin Wu, Jinna Lv, and Pilin Dai. Regular and Small Target Detection

Yannick Le Cacheux, Hervé Le Borgne, and Michel Crucianu. From Classical to Generalized Zero-Shot Learning: a Simple Adaptation Process

Masayuki Tamura and Satoshi Nakamura. A Method for Enriching Video-watching Experience with Applied Effects Based on Eye Movements

Junki Saito and Satoshi Nakamura. Fontender: Interactive Japanese Text Design with Dynamic Font

Fusion Method for Comics

Iacopo Vagliano, Angela Fessel, Franziska Guenther, Thomas Koehler, Vasileios Mezaris, Ahmed Saleh, Ansgar Scherp, and Ilija Simic. Training Researchers with the MOVING Platform

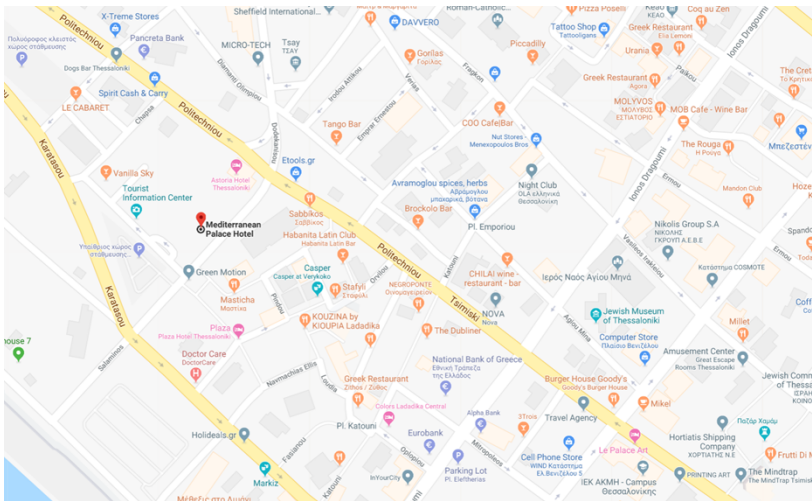
Kyriaki Christaki, Konstantinos C. Apostolakis, Alexandros Doumanoglou, Nikolaos Zioulis, Dimitrios Zarpalas, and Petros Daras. Space Wars: An AugmentedVR Game

Bernd Münzer, Andreas Leibetseder, Sabrina Kletz, and Klaus Schöffmann. ECAT - Endoscopic Concept Annotation Tool

Juan Soler-Company and Leo Wanner. Automatic Classification and Linguistic Analysis of Extremist Online Material

Conference Venue and Welcome Reception

Mediterranean Palace is a luxury hotel in Thessaloniki, in the city center, next to the traditional district of “Ladadika”, and with an astonishing view over the Thermaikos Gulf. The MMM 2019 conference, including the welcome reception on Jan. 9, will be hosted in the Mediterranean Palace hotel.



Mediterranean Palace Hotel Address: 3, Salaminos & Karatassou street, Thessaloniki, Greece.

