ISCV CONFERENCE

The IEEE International Conference on Intelligent Systems and Computer Vision

Final program

The fourth International Conference on Intelligent Systems and Computer Vision 2020

June 09-10-11, 2020
Fez – Morocco

About ISCV 2020

The fourth edition of the International Conference on Intelligent Systems and Computer Vision (ISCV 2020) provides a forum and an excellent venue for researchers, academic faculty, students, industry leaders, and others in the fields of Intelligent Systems and Computer Vision to present and publish their research results and approaches.

This edition is a succession of three successful editions 2015, 2017 and 2018. The first edition is already indexed by Scimago with an impact factor.

The ISCV2020 conference seeks original and high quality papers in the fields of Intelligent Systems and Information Management, Computer Vision and Image Understanding and applications of technologies in various fields.

ISCV2020 is held in Fez, the spiritual and cultural capital of Morocco.

All accepted and presented papers will be published in the conference proceedings and indexed by IEEE Xplore Digital Library and Scopus.

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List of Topics

The ISCV'2020 conference seeks original and high quality papers in the two major areas and their applications; the **Intelligent Systems** and **Computer Vision.** Relevant topics include, but are not limited to:

Intelligent Systems and Information Management

- Machine learning and Deep learning
- Cognitive Learning
- Semantic computing
- Information Retrieval
- Big Data Analytics
- Business Intelligence
- Data Mining, Knowledge Representation, Discovery and Management
- Intelligent Decision Making and Multi Agent Systems
- Ambient Intelligence, Mobile and Cloud Computing
- Service Oriented Architecture and Business Process Management
- Fuzzy Techniques and Systems
- Evolutionary Computing

Computer Vision and Image Understanding

- Intelligent video analytics
- Image/video processing
- Multimedia analysis, indexing and retrieval
- Vision for graphics
- Scene understanding
- Stereo and multiple view geometry
- 3D sensors: depth sensors, ToF, Kinect
- Human behavior understanding
- Gesture and action recognition
- Affective computing
- Depth processing, analysis and recognition
- Biometric systems

Tools and applications

- Intelligent Web-based Systems
- Health and Medecine
- Cultural heritage
- Intelligent transportation systems
- Education and e-learning
- Intelligent control and embedded systems
- Smart grids
- Wireless network technologies
- Security

Tuesday, June 09, 2020

09:00 - 10:00	**Welcoming participants**
10:00 - 11:00	**Conference official opening** - President of the University Sidi Mohamed Ben Abdellah of Fez. - Dean of the Faculty of Sciences Dhar El Mahraz of Fez. - Organizing committee

Break

| 11:15 - 13:00

Parallel sessions | **Paper session 1:**
Artificial Intelligence for Smart Healthcare

1. *Fatou Ngom, Ibrahima Fall, Mamadou Samba Camara and Alassane Bah*: A study on predicting and diagnosing noncommunicable diseases: case of cardiovascular diseases.

2. *Youssef Filali, Hasnae El Khoukhi and Abdellah Aarab*: Skin Cancer Diagnosis Using an Improved Voting Ensemble Machine Learning models.

3. *Eftichia Badeka, Cristina Papadopoulou and George Papakostas*: Evaluation of LBP Variants in Retinal Blood Vessels Segmentation Using Machine Learning.

4. *Hassan Qjidaa, Hicham Amakdouf, Yassine Mechbal, Anass Benfares, Mustapha Maaroufi, Mamoun Qjidaa and Badredine Alami*: Early detection of COVID19 by deep learning transfer combining several neural networks on chest radiographic images of populations in isolated rural areas.

5. *Hassan Qjidaa, Anas Benfares, Mamoun Qjidaa, Yassine Mechbal, Mostapha Maaroufi, Badrdeen Alami and Hicham Amakdouf*: Development of a clinical decision support system for the early detection of COVID 19 using deep learning based on chest radiographic images.

6. *Chaimae Khodriss, Chraibi Fouad, Benatiya Andaloussi Idriss, Bennis Ahmed, Abdellaoui Meriem and Hamid Tairi*: Artificial intelligence in ophthalmology. |

<table>
<tr><td colspan="2" align="center">**Paper session 2:**
Cloud computing, Manufacturing and Smart Agriculture</td></tr>
</table>

1.	*Fadwa Mahiri, Aouatif Najoua and Souad Ben Souda*: Data-driven sustainable smart manufacturing: A conceptual framework.
2.	*Iman Tikito and Nissrine Souissi*: Smart Data Collection in Mobile Edge Computing Environment.
3.	*Hafida Saidi, Nabila Labraoui, Ado Adamou Abba Ari and Djelloul Bouida*: Remote health monitoring system of elderly based on Fog to Cloud (F2C) computing.
4.	*Felix Nilsson, Jens Jakobsen and Fernando Alonso-Fernandez:* Detection and Classification of Industrial Signal Lights for Factory Floors.
5.	*Elias Ennadifi, Bernard Gosselin, Sohaib Laraba and Benoît Mercatoris:* Wheat Diseases Classification and Localization Using Convolutional Neural Networks and GradCAM Visualization.
6.	*Houda Ouled Benbrahim, Amine Merzouki and Khalid Minaoui*: Quantification of soil moisture variability over agriculture fields using Sentinel imagery.

<table>
<tr><td colspan="2" align="center">**Paper session 3:**
IOT and Augmented reality</td></tr>
</table>

1.	*Zainab Oufqir, Abdellatif El Abderrahmani and Khalid Satori*: ARKit and ARCore in serve to augmented reality.
2.	*Monica Romero, Jorge Ramon, Ivanna Harari and Javier Diaz*: Augmented reality for children with Autism Spectrum Disorder. A systematic review.
3.	*Mohammed Kadri, Hamza Khaloufi and Ahmed Azough: V-Museum*: A Virtual Museum Based on Augmented and Virtual Realities for Cultural Heritage Mediation.
4.	*Messabih Hadjer, Soheyb Ayad and Labib Sadek Terrissa: Context Aware for Internet of Thing*: A Survey.
5.	*Sebbah Abderrezzak and Kadri Benamar*: A Privacy and Authentication Scheme for IoT Environments Using ECC and Fuzzy Extractor.
6.	*Abderrahim Zannou, Abdelhak Boulaalam and El Habib Nfaoui*: A Node Capability Classification in Internet of Things.

Break

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<tr><td rowspan="7">15:00
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17:00

Parallel sessions</td><td>**Paper session 4:**
Image and Video Analysis</td></tr>
<tr><td>1. *Siham Bakkouri and Abderrahmane Elyousfi*: Effective CU size decision algorithm based on depth map homogeneity for 3D-HEVC inter-coding.</td></tr>
<tr><td>2. *Mohamed Amine Tahiri, Hicham Karmouni, Mhamed Sayyouri and Hassan Qjidaa*: Stable Computation of Hahn Polynomials for Higher Polynomial Order.</td></tr>
<tr><td>3. *Amal Hammani, Hamza Hamout and Abderrahmane Elyousfi*: Fast Depth Map Intra Mode Prediction Based on Self-organizing Map.</td></tr>
<tr><td>4. *Wafae Mrabti, Benaissa Bellach, Frédéric Morain-Nicolier and Hamid Tairi*: Tracking a human being via the gray local dissimilarity map.</td></tr>
<tr><td>5. *Mohamed Yamni, Hicham Karmouni, Mhamed Sayyouri and Hassan Qjidaa*: Color Stereo Image Zero-Watermarking using Quaternion Radial Tchebichef Moments.</td></tr>
<tr><td>6. *Mohamed Yamni, Hicham Karmouni, Achraf Daoui, Omar El Ogri, Mhamed Sayyouri and Hassan Qjidaa*: Blind Image Zero-Watermarking Algorithm Based on Radial Krawtchouk Moments and Chaotic System.</td></tr>
<tr><td></td><td>**Paper session 5:**
Collaborative Business and Recommender Systems</td></tr>
<tr><td></td><td>1. *Leila Amdah and Adil Anwar*: A DSL for collaborative Bussiness Process.</td></tr>
<tr><td></td><td>2. *Sonia Souabi, Asmaâ Retbi, Mohammed Khalidi Idrissi and Samir Bennani*: A Recommendation Approach in Social Learning Based on K-Means Clustering.</td></tr>
<tr><td></td><td>3. *Ayoub Berdeddouch, Ali Yahyaouy, Younès Bennani and Rosanna Verde*: Deep Based Recommender System For Relevant K Pick-up Points.</td></tr>
<tr><td></td><td>4. *Brahim Dib, Fahd Kalloubi, El Habib Nfaoui and Abdelhak Boulaalam:* Leveraging topic feature for followee recommendation on Twitter network.</td></tr>
<tr><td></td><td>5. *Fouad Nafis, Aghoutane Badraddine and Ali Yahyaouy*: Towards a semantic recommendation system for cultural objects: the case of the cultural heritage of the Drâa-Tafilalet zone.</td></tr>
</table>

	Paper session 6: *Control System*
1.	*Abderrahim El-Amrani, Bensalem Boukili, Ismail Boumhidi and Ahmed El Hajjaji*: H∞ model reduction for T-S fuzzy two-dimensional systems over finite frequency range.
2.	*Kaoutar Lahmadi and Ismail Boumhidi*: LMI approach to Robust Fuzzy H∞ Control for Wind Generator System in Finite Frequency Domain.
3.	*Ouarda Lamrabet, El Houssaine Tissir and Fatima El Haoussi*: Controller design for delta operator time-delay systems subject to actuator saturation.
4.	*Ilham Hmaiddouch, Mohamed Essabre, Abdellatif El Assoudi, Jalal Soulami and El Hassane El Yaagoubi*: Observer Design for a Class of Discrete-Time Takagi-Sugeno Models with Unmeasurable Premise Variables: Application to an Asynchronous Motor.
5.	*Ayoub El Bakri, Selma Sefriti and Ismail Boumhidi*: A sensor fault detection scheme of DFIG-based wind turbine using deep auto-encoder approach.
6.	*Amel Hammouya and Rachid Chaib: Human Factor*: A Key Element in A Fire Safety System Of Hydrocarbon Storage Tank.

Wednesday, June 10, 2020

09:30 - 10:45 *Parallel sessions*	Paper session 7: *Language Processing and Multimedia*
	1. *Marouan El Mansouri, Noureddine El Makhfi and Badraddine Aghoutane*: Toward Classification of Arabic Manuscripts Words Based on the Deep Convolutional Neural Networks.
	2. *Hicham Lamtougui, Hicham El Moubtahij, Fouadi Hassan, Ali Yahyaouy and Khalid Satori*: Offline Arabic Handwriting Recognition Using Deep Learning: Comparative Study.
	3. *Abderrahim Ezzine, Hassan Satori, Mohamed Hamidi and Khalid Satori*: Moroccan Dialect Speech Recognition System Based on CMU SphinxTools.
	4. *Fadwa Abakarim and Abdenbi Abenaou*: Amazigh isolated word speech recognition system using the Adaptive Orthogonal Transform Method.

Paper session 8:
Multi-Agent Systems

1. *Fatima Ezzahra Ezzrhari, Hassna Bensag, Mohamed Youssfi, Omar Bouattane and Vassilis Kaburlasos*: Scalable multi agent system middleware for HPC of Big Data Applications.

2. *Fatima Zahra Meskini and Rajae Aboulaich*: A New Cooperative Insurance Based On Blockchain Technology: Six Simulations To Evaluate The Model.

3. *Youssfi Mohamed, Bouattane Omar, Kaburlasos Vassilis and George Papakostas*: Generic distributed polymorphic learning model for a community of heterogeneous cyber physical social robots in MAS Environment and GPU Architecture.

4. *Karima Lamsaddak and Driss Mentagui*: Multi-agent simulation of the Moroccan conventional insurance sector.

5. *Rachid El Amrani, Ali Yahyaouy and Hamid Tairi*: Modeling and simulation of an evolutionary approach based on MAS strategy: for intelligent energy management in EV.

Paper session 9:
Network technologies

1. *Mourad Elhabchi, Mohamed Nabil Srifi and Raja Touahni*: A Fractal Metamaterial Antenna for Bluetooth, WLAN, WiMAX and X-band Applications.

2. *Yassine El Hasnaoui and Tomader Mazri*: Study, design and simulation of a network antenna for base station 5G.

3. *Khalid Kandali and Hamid Bennis*: A Routing Scheme Using an Adaptive K-Harmonic Means Clustering for VANETs.

4. *Amina Bengag, Asmae Bengag and Mohamed El Boukhari*: Enhancing GPSR routing protocol based on Velocity and Density for real-time urban scenario.

Break

11:00 - 12:30	**Paper session 10:**
	CyberSecurity and Anomaly detection
Parallel sessions	1. *Hamza Touil, Nabil El Akkad and Khalid Satori: Text Encryption*: Hybrid cryptographic method using Vigenere and Hill Ciphers.
	2. *Kawtar Bouzoubaa, Youssef Taher and Benayad Nsiri*: Dos attack forecasting: A comparative study on wrapper feature selection.
	3. *Hanene Mennour and Sihem Mostefai*: A hybrid Deep Learning Strategy for an Anomaly Based N-IDS.
	4. *Fatima Zohra El Hlouli*: Credit Card Fraud Detection Based on Multilayer Perceptron and Extreme Learning Machine Architectures.
	5. *Sashank Sridhar, Siddartha Mootha and Sudha Subramanian*: Detection of Market Manipulation using Ensemble Neural Networks.
	Paper session 11:
	E-learning
	1. *Farida Bouroumane, Abderrahim Saaidi and Mustaph Abarkan*: Pedagogical efficiency at the ludic level of a serious game.
	2. *Mohammed Ouadoud, Tarik Marrakchi and Rajae Taghzout*: Prototyping a Disciplinary Information Space for a New Learning Management System.
	3. *Aberbach Hicham, Jeghal Adil, Sabri My Abdelouahed and Tairi Hamid*: A Survey on educational data mining [2014-2019].
	4. *El Madani Hakima, Baya Maryem, Yazghich Ikrame, Taoufiq Imane, Aarab Chadya and Berraho Mohamed*: "Stress-free" mobile app for Moroccan university students: "relaxation program" validation.
	5. *Slimani Khadija, Bourekkadi Salmane, Messoussi Rochdi, Yassine Ruichek and Touahni Raja*: Sharing Emotions in the Distance Education Experience: Attitudes and Motivation of University Students.

	Paper session 12: *Embedded Systems*
	1. *Maryline Chetto and Audrey Queudet*: EDF-based real-time scheduling for self-powered sensors: a survey of main theoretical results.
	2. *Azeddine Wahbi, Anas Habti El Idrissi, Mohamed Elghayyaty and Laamari Hlou*: A New Embedded Chien Search Block for Reed-Solomon (RS) Codes based on Factorization of Error Locator Polynomial..
	3. *Abdellah Benaddy, Mostafa Bouzi and Moussa Labbadi*: Comparison of the different control strategies for Quadrotor Unmanned Aerial Vehicle.
	4. *Hamed Laouz, Soheyb Ayad and Labib Sadek Terrissa*: Literature Review on Driver's Drowsiness and Fatigue Detection.
	Break
15:00 - 17:00 *Parallel sessions*	**Paper session 13:** *NLP and Machine learning*
	1. *Saman Iftikhar, Fouzia Jabeen, Hira Nasir and Shahwana Fida*: WordNet and Wiki Based Approach for Finding Polysemy Tags in a Tag Set.
	2. *Chama El Saili, Soukaina Fatimi and Larbi Alaoui*: Frequent Itemsets Methods for Text Clustering.
	3. *Zakaria Kaddari, Youssef Mellah, Jamal Berrich, Toumi Bouchentouf and Mohammed G. Belkasmi* : Applying the T5 language model and duration units normalization to address temporal common sense understanding on the MCTACO dataset.
	4. *Soukaina Fatimi, Chama El Saili and Larbi Alaoui*: Semantic Oriented Text Clustering Based on RDF.
	5. *Safae Berrichi and Azzeddine Mazroui*: Enhancing Machine Translation by Integrating Linguistic Knowledge in the Word Alignment Module
	6. *Jash Lodhavia and Virik Jain*: Automatic Question Tagging using k-Nearest Neighbors and Random Forest.

Paper session 14:
Visual analytics

1. *Sami Gazzah and Omar Bencharef*: A Survey on how computer vision can response to urgent need to contribute in COVID-19 pandemics

2. *Soukaina El Idrissi El Kaitouni and Hamid Tairi: Segmentation of medical images for the extraction of brain tumors*: A comparative study between the Hidden Markov and Deep Learning approaches.

3. *Meryem Ameur, Cherki Daoui and Najlae Idrissi*: Markovian Segmentation Of Textured Color Images.

4. *Mohamed Zine El Abidine Amrani, Christoph Walter Borst and Noara Achour*: Fuzzy Logic Classifier and Conditional Responses Algorithm for Gestural Input Game.

5. *Hajar Chouhayebi, Jamal Riffi, Mohamed Adnane Mahraz, Ali Yahyaouy, Hamid Tairi and Nawal Alioua*: Facial expression recognition based on geometric features.

6. *Fadwa Benjelloun, Imane El Manaa and Abdellah Aarab*: The comparison between two methods of object detection: Fast Yolo model and Delaunay Triangulation.

Paper session 15:
Information Management and knowledge representation

1. *Jaewon Moon, Seungwoo Kum, Youngkee Kim, Vlado Stankovski, Uroš Paščinski and Petar Kochovski*: A Decentralized AI Data Management System In Federated Learning.

2. *Houda Sekkal, Naila Amrous and Samir Bennani*: Knowledge components detection in User-Generated Content.

3. *Monica Romero, Henry Quisnancela, Estela Macas and Washington Fierro*: Why implement continuity plans in Organizations? Approach of a prospective study based on ITIL.

4. *Elmo Vasquez, Leopoldo Vaca Ayabaca and Monica Romero*: Progress in the implementation of a business contingency plan. Case study: Municipality of Cantón Suscal.

5. *Elmo Vasquez, Juan Carlos Ortega Castro and Romero:* Design of a business contingency plan. Case study: Municipality of Cantón Suscal.

6. *Jabrane Kachaoui and Abdessamad Belangour*: Local Ontologies Merging in Data Ponds.

Thursday, June 11, 2020

10:00 - 12:00	**Paper session 16:** *Network and Wireless*
Parallel sessions	1. *Maryem Melhaoui, Abdelghani El Ougli and Belkassem Tidhaf*: Routing in Wireless Sensor Networks using Fuzzy Logic : A survey.
	2. *Souhaila Ben Haddi, Asmaa Zugari, Alia Zakriti and Soufiane Achraou*: A Compact Microstrip T-Shaped Resonator Band Pass Filter for 5G Applications.
	3. *Nabila Azdad and Mohamed Elboukhari*: An enhanced backoff strategy for fair channel access in WBAN-based health monitoring systems.
	4. *Rahmani Faouzi, Amar Touhami Naima and Belbachir Kchairi Abdemounaim*: Reconfigurable Radiation Pattern Antenna with eight Switchable Beams in Azimuth Plane for WLAN Wireless System.
	5. *Said Radouche and Cherkaoui Leghris*: Network selection based on cosine similarity and Combination of Subjective and Objective Weighting.
	Paper session 17: *Machine Learning and Deep Learning*
	1. *Zakariyaa Ait El Mouden and Abdeslam Jakimi*: k-eNSC: k-estimation for Normalized Spectral Clustering.
	2. *Saloua El Motaki, Ali Yahyaouy, Hamid Gualous and Jalal Sabor*: A new weighted fuzzy c-means based on the collective behaviour of starling birds.
	3. *Hamid Aksasse, Brahim Aksasse and Ouanan Mohammed*: Developing Good Habits Using Deep Learning Techniques.
	4. *El Houssaine Hssayni and Mohamed Ettaouil*: A Novel Pooling Method for Regularization of Deep Neural networks.
	5. *Mohammed Qaraad, Souad Amjad, Passent El-Kafrawy, Hanaa Fathi and Ibrahim Manhrawy:* Parameters Optimization of Elastic NET for High Dimensional Data using PSO Algorithm.
	6. *Imane El Boujnouni, Abdelhak Tali and Khalid Bentaleb*: Capsule Network Based on Scalograms of Electrocardiogram for Myocardial Infarction Classification.
	7. *Abdelilah Mbarek, Mouna Jiber, Ali Yahyaouy and Abdelouahed Sabri:* Road traffic mortality in Morocco: Analysis of statistical data.

	Paper session 18: *Signal processing and analysis*
	1. *Moustapha El Bakkali, Said Elkhaldi, Hanae Elftouh and Naima Amar Touhami*: Small-Signal Modeling of GaAs – pHEMT Using Direct Extraction Method.
	2. *Ilyass El Kadmiri, Fatima Zahra Elamri, Youssef Ben-Ali, Aissam Khaled, Abdelhamid Kerkour-El Miad and Driss Bria*: Induced guided acoustic waves by the presence of a defective guide in one dimensional asymmetric loop phononic crystal.
	3. *Achraf Daoui, Hicham Karmouni, Ayoub Azzayani, Mhamed Sayyouri and Hassan Qjidaa*: Large Size 1D Signal Analysis by Hybrid Tchebichef-Charlier Moments.
	4. *Achraf Daoui, Mohamed Yamni, Hicham Karmouni, Omar El Ogri, Mhamed Sayyouri and Hassan Qjidaa*: Efficient Reconstruction and Compression of Large Size ECG Signal by Tchebichef Moments.
	5. *Lina El Alaoui El Abidi, Mounir Hanine and Brahim Aksasse:* Smooth Filters for Improving Prony's Method in Labview Environment
12:00 – 12:30	**Closure**

Please note: The used time zone is UTC + 1.