Mohammed El Hassouni

Professeur de l'enseignement supérieur en Informatique

– Département des Sciences et Techniques de la Communication
Faculté des Lettres et des Sciences Humaines, Université Mohammed V de Rabat
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Formation
– 2012 : Habilitation à diriger les recherches de l'Université Mohammed V de Rabat.
– 2005 : Thèse de Doctorat en Informatique de l'Université de Bourgogne, France.

Expériences professionnelles

– Décembre 2018 : Professeur de l'enseignement supérieur en Informatique à la Faculté des Lettres et des Sciences Humaines, Université Mohammed V de Rabat.
– Septembre 2012 – Décembre 2018 : Professeur habilité en Informatique à la Faculté des Lettres et des Sciences Humaines, Université Mohammed V de Rabat.
– Février 2006 – Septembre 2012 : Professeur assistant en Informatique à la Faculté des Lettres et des Sciences Humaines, Université Mohammed V de Rabat.

Domaines d'expertise

– Réseaux complexes
– Machine/Deep Learning
– Vision par ordinateur
– Imagerie médicale et outils d'aide au diagnostic
– Qualité de l'expérience utilisateur QoE

Cours enseignés

- Infographie et synthèse d'images
- Traitement et analyse d'images
- Deep Learning
- Réseaux informatiques
- Programmation réseaux
- Algorithmique avancée
- Programmation en C/C++ et Python

Production scientifique (2014-2024)

Edition de numéros spéciaux dans des journaux internationaux

1. Mohamed-Chaker Larabi, Sanghoon Lee, Mohammed El Hassouni, Frédéric Morain-Nicolier, Rachid Jennane: Special Section Guest Editorial: Perceptually Driven Visual Information Analysis. Journal of Electronic Imaging 25(6): 61601 (2016)
2. Mohammed El Hassouni, Rachid Jennane, Ahmed Ben Hamida, Habib Benali, Basel Solaiman: Guest Editorial: Advances in Computational Intelligence for Multimodal Biomedical Imaging. Multimedia Tools Appl. 78(10): 12639-12645 (2019)

Edition de proceedings dans des conférences internationales

1. Khalid Minaoui, Mohammed El Hassouni, Hicham Laanaya, Dounia Lotfi, Salma Mouline, Mohamed Ouadou, Atika Rivenq, Mohammed Rziza, Samir Saoudi: 9th International Symposium on Signal, Image, Video and Communications, ISIVC 2018, Rabat, Morocco, November 27-30, 2018. IEEE 2018, ISBN 978-1-5386-8173-2
2. Mohammed El Hassouni, Mohammed Karim, Ahmed Ben Hamida, Ahmed Ben Slima, Basel Solaiman: 2017 International Conference on Advanced Technologies for Signal and Image Processing (ATSIP), Fez, Morocco, May 22-24, 2017. IEEE 2017, ISBN 978-1-5386-0551-6

Articles dans des journaux internationaux indexés (Web of Science et Scopus)

1. Lafhel, Majda, Hocine Cherifi, Benjamin Renoust, and Mohammed **El Hassouni**. 2024. "Comparison of Graph Distance Measures for Movie Similarity Using a Multilayer Network Model" *Entropy* 26, no. 2: 149.
2. Abbad, Z., El Maliani, A.D., El Alaoui, S.O., **El Hassouni**, M., Abbassi, M.T.K. Exploring multivariate generalized gamma manifold for color texture retrieval (2023) Pattern Recognition, 143, art. no. 109748.
3. Sabri, M., **El Hassouni**, M. Predicting photovoltaic power generation using double-layer bidirectional long short-term memory-convolutional network (2023) International Journal of Energy and Environmental Engineering, 14 (3), pp. 497-510.
4. Sabri, M., **El Hassouni**, M. Photovoltaic power forecasting with a long short-term memory autoencoder networks (2023) Soft Computing, 27 (15), pp. 10533-10553.
5. Benabdallah, F.Z., Drissi El Maliani, A., Lotfi, D., **El Hassouni**, M. A Convolutional Neural Network-Based Connectivity Enhancement Approach for Autism Spectrum Disorder Detection (2023) Journal of Imaging, 9 (6), art. no. 110.
6. Nasser, Y., **El Hassouni**, M., Hans, D., Jennane, R. A discriminative shape-texture convolutional neural network for early diagnosis of knee osteoarthritis from X-ray images (2023) Physical and Engineering Sciences in Medicine, 46 (2), pp. 827-837.
7. Bouzeboudja, O., Haddad, B., Taleb-Ahmed, A., Ameur, S., **El Hassouni**, M., Rachid Jennane Multifractal analysis for improved osteoporosis classification (2023) Biomedical Signal Processing and Control, 80, art. no. 104225.
8. Bourbia, S., Karine, A., Chetouani, A., **El Hassouni, M.**, Jridi, M. No-Reference 3D Point Cloud Quality Assessment Using Multi-View Projection and Deep Convolutional Neural Network (2023) IEEE Access, 11, pp. 26759-26772.
9. Benabdallah, F.Z., Drissi El Maliani, A., Lotfi, D., Jennane, R., **El Hassouni, M.** An autism spectrum disorder adaptive identification based on the Elimination of brain connections: a proof

of long-range underconnectivity (2022) Soft Computing, 26 (10), pp. 4701-4711.

10. Abbad, Z., Maliani, A.D.E., Alaoui, S.O.E., **El Hassouni, M.**, Abbassi, M.T.K.The Geodesic on the Generalized Gamma Manifold for Texture Image Retrieval (2022) Journal of Mathematical Imaging and Vision, 64 (3), pp. 243-260.

11. Sabri, N.M., **El Hassouni, M**. Accurate photovoltaic power prediction models based on deep convolutional neural networks and gated recurrent units (2022) Energy Sources, Part A: Recovery, Utilization and Environmental Effects, 44 (3), pp. 6303-6320.

12. Z. Ghalmane, C. Cherifi, H. Cherifi, **M. El Hassouni**. Extracting modular-based backbones in weighted networks. Information Sciences, Volume 576, Pages 454-474, 2021.

13. I Abouelaziz, A Chetouani, **M El Hassouni**, H Cherifi, LJ Latecki Learning graph convolutional network for blind mesh visual quality assessment. IEEE access 2021.

14. Hamidi, M.; El Haziti, M.; Cherifi, H.; **El Hassouni, M.** A Hybrid Robust Image Watermarking Method Based on DWT-DCT and SIFT for Copyright Protection. J. Imaging 2021, 7, 218. https://doi.org/10.3390/jimaging7100218

15. Ghalmane, Z., Cherifi, C., Cherifi, H and **M. El Hassouni**. Extracting backbones in weighted modular complex networks. Scientific Reports 10, 15539 (2020).

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17. Y. Nasser, R. Jennane, A. Chetouani, E. Lespessailles and **M. El Hassouni**, "Discriminative Regularized Auto-Encoder for Early Detection of Knee OsteoArthritis: Data from the Osteoarthritis Initiative," in IEEE Transactions on Medical Imaging 39(9): 2976-2984 (2020)

18. Abouelaziz, I., Chetouani, A., **El Hassouni, M.**, Latecki, L.J., Cherifi, H. 3D visual saliency and convolutional neural network for blind mesh quality assessment. Neural Computing and Applications (2020)

19. Karine, A., Toumi, A., Khenchaf, A**., Hassouni, M.E**. Multivariate copula statistical model and weighted sparse classification for radar image target recognition. Computers and Electrical Engineering, 84. (2020)

20. Abouelaziz, I., Chetouani, A., **El Hassouni**, M., Latecki, L.J., Cherifi, H. No-reference mesh visual quality assessment via ensemble of convolutional neural networks and compact multi-linear pooling Pattern Recognition. Vol 100, (2020)

21. Ghalmane, Z., Cherifi, C., Cherifi, H., **Hassouni, M.E**. Centrality in Complex Networks with Overlapping Community Structure Scientific Reports, 9 (1), art. no. 10133 (2019)

22. Hassan Rami, Ahmed Drissi El Maliani, Mohammed **El Hassouni**: A Finite Mixture of Weibull-Based Statistical Model for Texture Retrieval in the Complex Wavelet Domain. IEEE Access 7: 130144-130155 (2019)

23. Youssef Mourchid, Benjamin Renoust, Olivier Roupin, Le Van, Hocine Cherifi, Mohammed **El Hassouni**: Movienet: a movie multilayer network model using visual and textual semantic cues. Applied Network Science 4(1): 121 (2019)

24. Abdessamad Tafraouti, Mohammed **El Hassouni**, Rachid Jennane: Evaluation of fractional Brownian motion synthesis methods using the SVM classifier. Biomed. Signal Process. Control. 49: 48-56 (2019)

25. Zakariya Ghalmane, Mohammed **El Hassouni**, Chantal Cherifi, Hocine Cherifi:Centrality in modular networks. EPJ Data Sci. 8(1): 15:1-15:27 (2019)

26. Mohamed Hamidi, Aladine Chetouani, Mohamed El Haziti, Mohammed **El Hassouni**, Hocine Cherifi: Blind Robust 3D Mesh Watermarking Based on Mesh Saliency and Wavelet Transform for Copyright Protection. Information 10(2): 67 (2019)

27. Youssef Mourchid, Mohammed **El Hassouni**, Hocine Cherifi: A general framework for complex network-based image segmentation. Multimedia Tools Appl. 78(14): 20191- 20216 (2019)

28. Zakariya Ghalmane, Mohammed **El Hassouni**, Hocine Cherifi: Immunization of networks with non-overlapping community structure. Social Netw. Analys. Mining 9(1): 45:1-45:22 (2019)

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30. Ilyass Abouelaziz, Mohammed **El Hassouni**, Hocine Cherifi: Blind 3D mesh visual quality assessment using support vector regression. Multimedia Tools Appl. 77(18): 24365- 24386 (2018)

31. Mohamed Hamidi, Mohamed El Haziti, Hocine Cherifi, Mohammed **El Hassouni**: Hybrid blind robust image watermarking technique based on DFT-DCT and Arnold transform.

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39. H. Rami, L. Belmerhnia, A.D, El Maliani, **M. El Hassouni**. Texture retrieval using mixtures of generalized Gaussian distribution and Cauchy–Schwarz divergence in wavelet domain. Signal Processing: Image Communication, 42, 45-58 (2016).

40. Y. Mourchid, **M. El Hassouni**, H. Cherifi. Image segmentation based on community detection approach. International Journal of Computer Information Systems and Industrial Management Applications. Volume 8, Pages 195-2041, January 2016

41. A. Drissi El Maliani, **M. El Hassouni**, Y. Berthoumieu, D. Aboutajdine. Generic multivariate model for color texture classification in RGB color space. International Journal of Multimedia Information Retrieval, 4(3), 217-231 (2015)

42. M. Omari, **M. El Hassouni**, A. Ait Abdelouahad, H. Cherifi. A statistical reduced-reference method for color image quality assessment. Multimedia Tools and Applications, 74(19), 8685-870 (2015)

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44. A. Ait Abdelouahad, **M. El Hassouni**, H. Cherifi, D. Aboutajdine. Reduced reference image quality assessment based on statistics in empirical mode decomposition domain. Signal, Image and Video Processing 8(8): 1663-1680 (2014)

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2. Mohamadi, H.E., Hassouni, M.E. Enhanced Deep Learning Explainability for COVID-19 Diagnosis from Chest X-ray Images by Fusing Texture and Shape Features (2023) Proceedings - 10th International Conference on Wireless Networks and Mobile Communications, WINCOM 2023,

3. Bourbia, S., Karine, A., Chetouani, A., El Hassouni, M., Jridi, M. No-reference Point Clouds Quality Assessment using Transformer and Visual Saliency (2022) QoEVMA 2022 - Proceedings of the 2nd Workshop on Quality of Experience in Visual Multimedia Applications, pp. 57-62.

4. Laazoufi, A., Hassouni, M.E., Cherifi, H. 3D point cloud quality assessment method using Mahalanobis distance (2022) Proceedings - 16th International Conference on Signal-Image Technology and Internet-Based Systems, SITIS 2022, pp. 616-621.

5. El Hassouni, M., Cherifi, H. LEARNING GRAPH FEATURES FOR COLORED MESH VISUAL QUALITY ASSESSMENT (2022) Proceedings - International Conference on Image Processing, ICIP, pp. 3381-3385.

6. Laazoufi, A., El Hassouni, M. Saliency-based point cloud quality assessment method using aware features learning(2022) Proceedings - 2022 9th International Conference on Wireless Networks and Mobile Communications, WINCOM 2022, .

7. Lafhel, M., Abrouk, L., Cherifi, H., Hassouni, M.E. The similarity between movie scripts using Multilayer Network Laplacian Spectra Descriptor (2022) 2022 IEEE Workshop on Complexity in Engineering, COMPENG 2022, .

8. Nasser, Y., Hassouni, M.E., Jennane, R. Discriminative Deep Neural Network for Predicting Knee OsteoArthritis in Early Stage (2022) Lecture Notes in Computer Science (including subseries Lecture Notes in Artificial Intelligence and Lecture Notes in Bioinformatics), 13564 LNCS, pp. 126-136.

9. Benallal, H., Abouelaziz, I., Mourchid, Y., Falou, A.A., Tairi, H., Riffi, J., Hassouni, M.E. A new approach for removing point cloud outliers using the standard score (2022) Proceedings of SPIE - The International Society for Optical Engineering, 12101, art. no. 1210107,

10. Benallal, H., Mourchid, Y., Abouelaziz, I., Falou, A.A., Tairi, H., Riffi, J., El Hassouni, M.E. A New Approach for Removing Point Cloud Outliers using Box plot (2022) Proceedings of SPIE - The International Society for Optical Engineering, 12101, art. no. 1210108,

11. Sabri, M., El Hassouni, M. A Comparative Study of LSTM and RNN for Photovoltaic Power Forecasting (2022) Lecture Notes on Data Engineering and Communications Technologies, 110, pp. 265-274.

12. Salima Bourbia, Ayoub Karine, Aladine Chetouani, Mohammed El Hassouni. Blind projection-based 3D point cloud quality assessment method using a convolutional neural network. VISAPP 2022.

13. Mohammed Sabri and Mohammed El Hassouni. A Novel Deep Learning Approach for Short Term Photovoltaic Power Forecasting Based on GRU-CNN Model. E3S Web Conf., 336 (2022).

14. Fatima zahra Benabdallah, Ahmed Drissi El Maliani, Mohammed El Hassouni. A CNN Based 3D Connectivity Matrices Features for Autism Detection: Application on ABIDE I. UNET 2021.

15. Abouelaziz, Ilyass; Chetouani, Aladine; El Hassouni, Mohammed; Cherifi, Hocine. No- reference mesh visual quality assessment using graph-based deep learning. IEEE MMSP, Finland 2021.

16. Sabri M., El Hassouni M. A Comparative Study of LSTM and RNN for Photovoltaic Power Forecasting. In Advanced Technologies for Humanity. ICATH 2021. Lecture Notes on Data Engineering and Communications Technologies, vol 110. Springer

17. Salima Bourbia, Ayoub Karine, Aladine Chetouani, Mohammed El Hassouni. A Multi-task convolutional neural network for blind stereoscopic image quality assessment using naturalness analysis. ICIP 2021, Alaska, USA.

18. Majda Lafhel, Youssef Mourchid, Benjamin Renoust, Hocine Cherifi, Mohammed El Hassouni. Assessing movie similarity using a multilayer network model. French Regional Conference on Complex Systems 2021, Dijon, France.

19. Ilyass Abouelaziz, Aladine Chetouani, Mohammed El Hassouni, Longin Jan Latecki, Hocine Cherifi: Combination Of Handcrafted And Deep Learning-Based Features For 3d Mesh Quality Assessment. ICIP 2020: 171-175

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21. Majda Lafhel, Hocine Cherifi, Benjamin Renoust, Mohammed El Hassouni, Youssef Mourchid: Movie Script Similarity Using Multilayer Network Portrait Divergence. COMPLEX NETWORKS (1) 2020: 284-295

22. Zakariya Ghalmane, Chantal Cherifi, Hocine Cherifi, Mohammed El Hassouni: A backbone extraction method for complex weighted networks. MARAMI 2020

23. Zakariae Abbad, Ahmed Drissi El Maliani, Said Ouatik El Alaoui, Mohammed El Hassouni: A Graph-based approach to derive the geodesic distance on Statistical manifolds: Application to Multimedia Information Retrieval. WINCOM 2020: 1-6

24. Fatima Zahra Benabdallah, Ahmed Drissi El Maliani, Dounia Lotfi, Mohammed El Hassouni: Analysis of the Over-Connectivity in Autistic Brains Using the Maximum Spanning Tree: Application on the Multi-Site and Heterogeneous ABIDE Dataset. WINCOM 2020: 1-7

25. Rabia Riad ; Rachid Jennane ; Hassan Douzi ; Abdessamade Rafiki ; Eric Lespessailles ; Odemir M. Bruno, Mohammed El Hassouni., "A New Complex Wavelet Relative Phase for Osteoporosis Diagnosis," 2019 4th World Conference on Complex Systems (WCCS), Ouarzazate, Morocco, 2019, pp. 1-6.

26. M. Jbene, A. D. el Maliani and M. El Hassouni, "Fusion of Convolutional Neural Network and Statistical Features for Texture classification," 2019 International Conference on Wireless Networks and Mobile Communications (WINCOM), Fez, Morocco, 2019, pp. 1-4.

27. Hamidi M., Chetouani A., El Haziti M., El Hassouni M., Cherifi H. (2019) A Robust Blind 3-D Mesh Watermarking Technique Based on SCS Quantization and Mesh Saliency for Copyright Protection. In: Renault É., Boumerdassi S., Leghris C., Bouzefrane S. (eds) Mobile, Secure, and Programmable Networking. MSPN 2019. Lecture Notes in Computer Science, vol 11557. Springer, Cham

28. Ait-Beni-Ifit A., Alaoui-Fdili O., Corlay P., Coudoux FX., Hassouni M.E. (2019) Overview on HEVC Inter Frame Video Coding's Impact on the Energy Consumption for Next Generation WVSNs. In: Attiogbé C., Ferrarotti F., Maabout S. (eds) New Trends in Model and Data Engineering. MEDI 2019. Communications in Computer and Information Science, vol 1085. Springer, Cham

29. I. Abouelaziz, A. Chetouani, M. E. Hassouni, L. Jan Latecki and H. Cherifi, "Mesh Visual Quality based on the combination of convolutional neural networks," 2019 Ninth International Conference on Image Processing Theory, Tools and Applications (IPTA), Istanbul, Turkey, 2019, pp. 1-5.

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31. A. A. B. Ifit, O. Alaoui-Fdili, P. Corlay, F. Coudoux and M. E. Hassouni, "Transmission Energy Analysis And Modeling Of A Video Sensor Node In The Context Of Next Generation WVSN," 2018 IEEE Conference on Antenna Measurements & Applications (CAMA), Vasteras, 2018, pp. 1-4.

32. I. Abouelaziz, A. Chetouani, M. El Hassouni and H. Cherifi, "Reduced Reference Mesh Visual Quality Assessment Based on Convolutional Neural Network," 2018 14th International Conference on Signal-Image Technology & Internet-Based Systems (SITIS), Las Palmas de Gran Canaria, Spain, 2018, pp. 617-620.

33. F. Z. Benabdallah, A. D. El Maliani, D. Lotfi, R. Jennane and M. El Hassouni, "Analysis of under-connectivity in Autism using the minimum spanning tree: application on large multi-site dataset," 2018 9th International Symposium on Signal, Image, Video and Communications (ISIVC), Rabat, Morocco, 2018, pp. 296-299.

34. Z. Ghalmane, M. El Hassouni, C. Cherifi and H. Cherifi, "k-Truss Decomposition for Modular Centrality," 2018 9th International Symposium on Signal, Image, Video and Communications (ISIVC), Rabat, Morocco, 2018, pp. 241-248.

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Activités pédagogiques et de recherches

- Expert évaluateur scientifique affilié au CNRST depuis octobre 2019
- Coordonnateur pédagogique de la licence professionnelle « Métiers de la Communication Digitale »
- Membre du collège du Département des Sciences et Techniques de la Communication.
- Membre élu de la commission scientifique de la FLSH durant la période 2021-2023.
- Membre élu du conseil de la FLSH durant la période 2021-2023.
- Membre de la commission pédagogique durant la période 2021-2023.
- Membre de la commission recherche durant la période 2021-2023.
- Membre permanent du groupe de recherche « Signaux, Communications et Multimédia » de la Faculté de Sciences de Rabat.
- Membre permanent du Laboratoire LRIT « Laboratoire de Recherche en Informatique et Télécommunications » de la Faculté de Sciences de Rabat.
- Membre actif de l'UFR « Informatique et Télécommunications » de la Faculté de Sciences de Rabat.
- Membre de l'Unité Associée au CNRST N° 29.
- Membre du pôle de compétences national en Science et Technologie de l'Information et de la Communication.
- Membre permanent du centre de recherche de l'Université Mohammed V de Rabat, « Rabat IT Center »

- Membre du conseil de gouvernance du du centre de recherche de l'Université Mohammed V de Rabat, « Rabat IT Center »

- Membre du bureau de « IEEE Signal Processing Society Morocco Chapter »
- Membre fondateur et du bureau du chapitre marocain INNS.

Projets et conventions de recherches

- Convention de recherche CNRS/CNRST **STIC 05/10** (2010/2012). Modélisation stochastique pour le traitement, l'analyse et la synthèse des images texturées : application à la pétrophysique et à la caractérisation des matériaux pour l'aéronautique. Avec le Laboratoire IMS de l'Université de Bordeaux I.
- Convention de recherche CNRS/CNRST **STIC 02/14** (2014/2015). Bruit et qualité pour les systèmes d'imagerie non-conventionnelles : Application à la robotique, santé et le patrimoine culturel. Avec le laboratoire LE2i de l'Université de Bourgogne.
- Membre du projet prioritaire de recherche **PPR/2015/43** (2015-2018) intitulé « Réseaux de capteurs sans fil pour la surveillance biomédicale ». Laboratoire LRIT URAC 29, Faculté des Sciences de Rabat.
- Responsable du projet de recherche de l'académie Hassan II des Sciences et Techniques (2021-2024). « Plate-forme logicielle d'intégration des stratégies d'immunisation contre la pandémie Covid-19 »

Activités éditoriales et organisation des conférences internationales

- Guest co-editor of the special issue entitled "Perceptually Driven Visual Information Analysis" for the journal of "Electronic Imaging", issue November/December 2016.
- Co-chair of "Quality of Multimedia Services QUAMUS 2014", Marrakesh, Morocco
- Co-chair of "Quality of Multimedia Services QUAMUS 2015", Bangkok, Thailand
- Co-chair of "Quality of Multimedia Services QUAMUS 2016", Napoli, Italy
- Co-chair of "Quality of Multimedia Services QUAMUS 2017", Jaipour, India
- Special session co-chair « Perceptually Driven Visual Information Analysis », IPTA 2015, Orléans, France.
- Special session co-chair « Advances in medical imaging », IPTA 2016, Oulu, Finland. Track co-chair « Multimedia, Computer Vision and Image Processing», AICCSA 2015, Marrakesh, Morocco.
- Track co-chair « Multimedia, Computer Vision and Image Processing», AICCSA 2016, Agadir, Morocco.
- Local co-chair "The 3rd International Conference on Advanced Technologies for Signal and Image Processing (ATSIP'2017)", Fez, Morocco
- Track co-chair, Advances in COMputational Biomedical Imaging Track, COMBI 2017, The 32nd ACM SIGAPP Symposium on Applied Computing, April 3 – 7, 2017, Marrakesh, Morocco.
- Track co-chair, Advanced Computational Methods in bioMedical Imaging and Population Health Track, ACMMIPH 2018, The 33nd ACM SIGAPP Symposium on Applied Computing, April 9 – 13, 2018, Pau, France.
- Membre du comité d'organisation de MICCAI 2024 « International Conference on Medical Image Computing and Computer Assisted Intervention » qui sera organisé à Marrakech en Octobre 2024.
- General chair de IPTA 2024 « International conference of image processing tools and applications" qui sera organisé à Rabat en Octobre 2024.