# Ahmad Chaddad, Ph.D.


Professor at SAI-GUET, China. | Associate Member, LIVIA, ETS-UQAM, Canada.
ahmadchaddad@guet.edu.cn | ahmad8chaddad@gmail.com
Scholar (30) | ResearchGate (29)
https://sites.google.com/view/ahmad-chaddad
Citizenship: Canadian
Status: Married (+2 kids)
Date of Birth: February 1, 1984


## Academic Roles

- **Professor:** School of Artificial Intelligence (SAI), Guilin University of Electronic Technology (GUET).
- **Chair of Research Laboratory:** Artificial Intelligence for Personalized Medicine.
- **Master and Ph.D. Supervisor:** Topics in Artificial Intelligence.

## Research Interests

- **AI Directions:** Radiomics, Federated Learning, Explainable AI, Multi-omics (Genomics + Proteomics + Transcriptomics), Survival Analysis, etc.
- **Health-related Fields:** Cancers, Disorder Diseases, COVID-19, Immunotherapy, Biomarkers, etc.
- **Technical Topics:** Domain Shifting, Quantitative Features, Classifier Optimizing.

## Employment History

| | |
|---|---|
| 2022 (01) – ongoing | **Full Professor,** SAI, GUET, Guilin, Guangxi, China. |
| 2020 (01) – 2021 (12) | **Associate Professor,** SAI, GUET, Guilin, Guangxi, China. |
| 2017 – 2019 | **Project Director,** McGill University, Canada. |
| | **Adjunct Professor,** Ecole de Technologie Supérieure, Canada. |
| 2015 – 2017 | **Post-doc/Scientist,** McGill University, Canada. |
| 2013 – 2015 (18 months) | **Post-doc Research Fellow,** University of Texas MD Anderson Cancer Center, USA. |
| 2013 (7 months) | **Post-doc Research Fellow,** Villanova University, USA. |
| 2012 – 2013 (6 months) | **Research Associate,** Ecole Polytechnique de Montréal, Canada. |
| 2009 – 2012 | **Instructor,** University of Lorraine, Metz, France. |

## Education

| | |
|---|---|
| 2009 – 2012 | **Ph.D., Engineering Systems,** University of Lorraine, France. |
| 2007 – 2008 | **Master-DEA, Bio-mechanical and Biomedical Engineering,** University of Technology Compiegne, France. |
| 2002 – 2007 | **B. Eng., Biomedical Engineering,** Lebanese University, Lebanon. |

## Course Development | 2010-2024 | China, Canada, and France

- Digital Signal Processing
- Digital Image Processing
- Digital System Design
- Deep Neural Networks

## Course Development | 2010-2024 | China, Canada, and France (continued)

- Computer Vision
- Biometric Systems
- Analog and Digital Electronics
- Digital and Analog Circuits

## Student Supervision

- **Ph.D. Students:**
  - **2024–2028:** Muhammad Owais, GUET, China
  - **2013–2018:** Hawraa Haj-Hassan, University of Lorraine, France (`http://theses.fr/2018LORR0043`)

- **Master Students (R: Research, P: Professional):**
  - **2024–ongoing:** GUET, China
    - Yihang Wu (R), Xianrui Chen(R), Jie Ren (P), Renchen Feng (P)
  - **2023–ongoing:** GUET, China
    - Jia Ping Yue (P), Zhao Xin Yuan (P), Lu Yunyao (R)
  - **2022–ongoing:** GUET, China
    - Binbin Wen (P), Yan Hu (R)
  - **2012:** University of Lorraine, France
    - Houssein Hajj-Hassan (R)

- **Undergraduate students 6 Students :**
  - **2023–2024:** GUET, China
    - Yihang Wu, Guinan Tan, Jihao Peng, Xiaojuan Liang, Yuchen Jiang, Jianjie Ou

## Undergraduate Final Projects | 2023-ongoing

- Deep Learning-based Lung Nodule Detection
- Classification-based models for lung cancer using medical images
- Stream efficient learning for medical image classification
- Medical image classification algorithm based on multi-modal interpretive AI
- Reinforcement learning to improve the classifier performance
- Information flow analysis based on XAI model
- Radiomic stability analysis for diagnosing patients with brain tumor

## Grants and Funding

- **2023/01–2026/12** NSFC: Regional Science Foundation Project (National grant)
  PI: Chaddad A.
  Collaborators: Ismail Ben Ayed, Christian Desrosiers, and Ahmed Bouridane
  Title: An interpretable deep radiomics model for personalized treatment of brain tumors
  Approved budget: 330,000 RMB
  Project ID: 82260360
  Country: China

## Grants and Funding (continued)

- **2023/05–2026/05** Guangxi Science and Technology Base and Talent Project: The introduction of high-level talents at home and abroad
  PI: Chaddad A.
  Title: AI-based personalized treatment of COVID-19 patients.
  Approved budget: 190,000 RMB
  Project ID: 2022AC18004
  Country: China

- **2023/06–2025/06** Guilin Innovation Platform and Talent Program (C26)
  PI: Chaddad A.
  Title: AI-based prediction of brain tumor treatment
  Approved budget: 600,000 RMB
  Project ID: 20222C264164
  Country: China

- **2023/05–2026/05** Guangxi Science and Technology Base and Talent Project: Young scientific and technological innovation talents
  PI: Chaddad A.
  Title: Radiomics analysis of brain tumors
  Approved budget: 200,000 RMB
  Project ID: 2022AC21040
  Country: China

- **2021/01–2022/12** Foreign Young Talents Program (National grant)
  PI: Chaddad A.
  Title: Radiomics analysis for predicting Autism Spectrum Disorder.
  Requested budget: 300,000 RMB
  Status: approved (account: ZQT ZN04)
  Project ID: QN2021033002L
  Country: China

- **2020/01–2021/12** Foreign Young Talents Program (National grant)
  PI: Chaddad A.
  Title: Deep radiomic models for the personalized management of prostate cancer.
  Requested budget: 150,000 RMB
  Status: approved
  Project ID: QN20200233001
  Country: China

- **2021–2023** Research Nova Scotia; ACURA
  PI: Kucharczyk MJ.
  Co-Investigators: Chaddad A., Clarke S., Rendon R., Beyea S., Mason R., Bowen C. and Matheson K.
  Title: Can Magnetic Resonance Imaging of the Prostate combined with a Radiomics Evaluation Determine the Invasive Capacity of a Tumour (Can MRI-PREDICT).
  Project ID: RNS-NHIG-2020-1384
  Requested budget: 97,680 CAD.
  Status: approved
  Country: Canada

## Grants and Funding (continued)

- **2021–2024** Guilin University of Electronic Technology
  PI: Chaddad A.
  Title: Artificial intelligence for personalized medicine.
  Requested budget: 200,000 RMB.
  Status: approved
  Project account ID: UF20051Y
  Country: China

- Guilin University of Electronic Technology
  PI: Chaddad A.
  Research platform services
  Requested budget: 300,000 RMB.
  Status: approved
  Project account ID: YXRSZN04
  Country: China

- **Funds to Support Student Projects**
  **2024–2025** Guangxi province project for undergraduate student
  Title: Research on medical image classification based on federated domain adaptation based on vision-language model
  Requested budget: 6,000 RMB.
  Status: approved
  Country: China

- **2024–2026** GUET project for master student
  Title: Interpretable Personalized Federated Learning Method for Medical Diagnostic Tasks
  Requested budget: 10,000 RMB.
  Status: approved
  Project ID: 2024YCXS196
  Country: China

- **2023–2024** National project for student
  Title: Research on federated domain adaptation model in personalized medicine
  Requested budget: 20,000 RMB.
  Status: approved
  Project account ID: C23ZNM00ZN0N
  Project ID: 202310595083
  Country: China

- **2021–2023** GUET funds for Undergraduate research projects
  Requested budget: 11,000 RMB.
  Status: approved
  Project account ID: C23ZNM00ZNAL
  Country: China

## Research Publications

*Publications Summary
A total of 114 complete peer-reviewed papers: **Journals:** 58 + **Conferences:** 56
Affiliated to the School of Artificial Intelligence: 55 papers (**Journals:** 29 + **Conferences:** 26)
+ a total of 18 Abstracts

## Journal Articles

1. **Chaddad, Ahmad**, Y. Wu, Y. Jiang, A. Bouridane, and C. Desrosiers, "Simulations of common unsupervised domain adaptation algorithms for image classification," *IEEE Transactions on Instrumentation  Measurement*, 2025.
2. **Chaddad, Ahmad**, Y. Hu, Y. Wu, B. Wen, and R. Kateb, "Generalizable and explainable deep learning for medical image computing: An overview," *Current Opinion in Biomedical Engineering*, p. 100 567, 2024.
3. **Chaddad, Ahmad** and X. Liang, "Stability of radiomic models and strategies to enhance reproducibility," *IEEE Transactions on Radiation and Plasma Medical Sciences*, 2024.
4. **Chaddad, Ahmad**, Y. Wu, and C. Desrosiers, "Federated learning for healthcare applications," *IEEE Internet of Things Journal*, vol. 11, no. 5, pp. 7339–7358, 2024.
5. Y. Katib, S. Tisseverasinghe, I. J. Gerard, B. Royal-Preyra, **Chaddad, Ahmad**, T. Sasson, B. Bahoric, F. Roncarolo, and T. Niazi, "Evaluating the effects of prostate radiotherapy intensified with pelvic nodal radiotherapy and androgen deprivation therapy on myelosuppression: Single-institution experience," *Current Oncology*, vol. 31, no. 9, pp. 5439–5451, 2024.
6. **Chaddad, Ahmad**, L. Hassan, and Y. Katib, "A texture-based method for predicting molecular markers and survival outcome in lower grade glioma," *Applied Intelligence*, vol. 53, no. 21, pp. 24 724–24 738, 2023.
7. **Chaddad, Ahmad**, L. Hassan, Y. Katib, and A. Bouridane, "Deep survival analysis with clinical variables for covid-19," *IEEE Journal of Translational Engineering in Health and Medicine*, vol. 11, pp. 223–231, 2023.
8. **Chaddad, Ahmad**, Q. Lu, J. Li, Y. Katib, R. Kateb, C. Tanougast, A. Bouridane, and A. Abdulkadir, "Explainable, domain-adaptive, and federated artificial intelligence in medicine," *IEEE/CAA Journal of Automatica Sinica*, vol. 10, no. 4, pp. 859–876, 2023.
9. **Chaddad, Ahmad**, J. Peng, J. Xu, and A. Bouridane, "Survey of explainable ai techniques in healthcare," *Sensors*, vol. 23, no. 2, p. 634, 2023.
10. **Chaddad, Ahmad**, G. Tan, X. Liang, L. Hassan, S. Rathore, C. Desrosiers, Y. Katib, and T. Niazi, "Advancements in mri-based radiomics and artificial intelligence for prostate cancer: A comprehensive review and future prospects," *Cancers*, vol. 15, no. 15, p. 3839, 2023.
11. **Chaddad, Ahmad** and C. Tanougast, "Cnn approach for predicting survival outcome of patients with covid-19," *IEEE Internet of Things Journal*, vol. 10, no. 15, pp. 13 742–13 753, 2023.
12. **Chaddad, Ahmad**, Y. Wu, R. Kateb, and A. Bouridane, "Electroencephalography signal processing: A comprehensive review and analysis of methods and techniques," *Sensors*, vol. 23, no. 14, p. 6434, 2023.
13. S. Rathore, M. A. Iftikhar, **Chaddad, Ahmad**, A. Singh, Z. Gillani, and A. Abdulkadir, "Imaging phenotypes predict overall survival in glioma more accurate than basic demographic and cell mutation profiles," *Computer Methods and Programs in Biomedicine*, vol. 242, p. 107 812, 2023.
14. **Chaddad, Ahmad**, P. Daniel, M. Zhang, S. Rathore, P. Sargos, C. Desrosiers, and T. Niazi, "Deep radiomic signature with immune cell markers predicts the survival of glioma patients," *Neurocomputing*, vol. 469, pp. 366–375, 2022.
15. L. Huang, Y. Li, X. Wang, H. Wang, A. Bouridane, and **Chaddad, Ahmad**, "Gaze estimation approach using deep differential residual network," *Sensors*, vol. 22, no. 14, p. 5462, 2022.
16. M. Zhang, M. Zhang, F. Zhang, **Chaddad, Ahmad**, and A. Evans, "Robust brain mr image compressive sensing via re-weighted total variation and sparse regression," *Magnetic Resonance Imaging*, vol. 85, pp. 271–286, 2022.
17. **Chaddad, Ahmad**, L. Hassan, and C. Desrosiers, "Deep cnn models for predicting covid-19 in ct and x-ray images," *Journal of medical imaging*, vol. 8, no. S1, pp. 014 502–014 502, 2021.

18 **Chaddad, Ahmad**, L. Hassan, and C. Desrosiers, "Deep radiomic analysis for predicting coronavirus disease 2019 in computerized tomography and x-ray images," *IEEE Transactions on Neural Networks and Learning Systems*, vol. 32, no. 12, pp. 3–11, 2021.

19 **Chaddad, Ahmad**, Y. Katib, and L. Hassan, "Future artificial intelligence tools and perspectives in medicine," *Current Opinion in Urology*, vol. 31, no. 4, pp. 371–377, 2021.

20 **Chaddad, Ahmad**, M. J. Kucharczyk, A. Cheddad, S. E. Clarke, L. Hassan, S. Ding, S. Rathore, M. Zhang, Y. Katib, B. Bahoric, *et al.*, "Magnetic resonance imaging based radiomic models of prostate cancer: A narrative review," *Cancers*, vol. 13, no. 3, p. 552, 2021.

21 **Chaddad, Ahmad**, J. Li, Q. Lu, Y. Li, I. P. Okuwobi, C. Tanougast, C. Desrosiers, and T. Niazi, "Can autism be diagnosed with artificial intelligence? a narrative review," *Diagnostics*, vol. 11, no. 11, p. 2032, 2021.

22 N. Giraud, N. Benziane-Ouaritini, U. Schick, J.-B. Beauval, **Chaddad, Ahmad**, T. Niazi, M. D. Faye, S. Supiot, P. Sargos, and I. Latorzeff, "Post-operative radiotherapy in prostate cancer: Is it time for a belt and braces approach?" *Frontiers in Oncology*, vol. 11, p. 781 040, 2021.

23 S. Rathore, **Chaddad, Ahmad**, M. A. Iftikhar, M. Bilello, and A. Abdulkadir, "Combining mri and histologic imaging features for predicting overall survival in patients with glioma," *Radiology: Imaging Cancer*, vol. 3, no. 4, e200108, 2021.

24 **Chaddad, Ahmad**, M. J. Kucharczyk, C. Desrosiers, I. P. Okuwobi, Y. Katib, M. Zhang, S. Rathore, P. Sargos, and T. Niazi, "Deep radiomic analysis to predict gleason score in prostate cancer," *IEEE Access*, vol. 8, pp. 167 767–167 778, 2020.

25 **Chaddad, Ahmad**, P. Sargos, and C. Desrosiers, "Modeling texture in deep 3d cnn for survival analysis," *IEEE Journal of Biomedical and Health Informatics*, vol. 25, no. 7, pp. 2454–2462, 2020.

26 L. Ji, R. Zhang, H. Han, and **Chaddad, Ahmad**, "Image magnification based on bicubic approximation with edge as constraint," *Applied Sciences*, vol. 10, no. 5, p. 1865, 2020.

27 M. J. Kucharczyk, J. M. G. Tsui, F. Khosrow-Khavar, B. Bahoric, L. Souhami, M. Anidjar, S. Probst, **Chaddad, Ahmad**, P. Sargos, and T. Niazi, "Combined long-term androgen deprivation and pelvic radiotherapy in the post-operative management of pathologically defined high-risk prostate cancer patients: Results of the prospective phase ii mcgill 0913 study," *Frontiers in Oncology*, vol. 10, p. 312, 2020.

28 S. Rathore, T. Niazi, M. A. Iftikhar, and **Chaddad, Ahmad**, "Glioma grading via analysis of digital pathology images using machine learning," *Cancers*, vol. 12, no. 3, p. 578, 2020.

29 S. Rathore, T. Niazi, M. A. Iftikhar, A. Singh, B. Rathore, M. Bilello, and **Chaddad, Ahmad**, "Multimodal ensemble-based segmentation of white matter lesions and analysis of their differential characteristics across major brain regions," *Applied Sciences*, vol. 10, no. 6, p. 1903, 2020.

30 **Chaddad, Ahmad**, P. Daniel, S. Sabri, C. Desrosiers, and B. Abdulkarim, "Integration of radiomic and multi-omic analyses predicts survival of newly diagnosed idh1 wild-type glioblastoma," *Cancers*, vol. 11, no. 8, p. 1148, 2019.

31 **Chaddad, Ahmad**, C. Desrosiers, B. Abdulkarim, and T. Niazi, "Predicting the gene status and survival outcome of lower grade glioma patients with multimodal mri features," *IEEE Access*, vol. 7, pp. 75 976–75 984, 2019.

32 **Chaddad, Ahmad**, M. J. Kucharczyk, P. Daniel, S. Sabri, B. J. Jean-Claude, T. Niazi, and B. Abdulkarim, "Radiomics in glioblastoma: Current status and challenges facing clinical implementation," *Frontiers in oncology*, vol. 9, p. 374, 2019.

33 **Chaddad, Ahmad**, M. Toews, C. Desrosiers, and T. Niazi, "Deep radiomic analysis based on modeling information flow in convolutional neural networks," *IEEE Access*, vol. 7, pp. 97 242–97 252, 2019.

34 P. Daniel, S. Sabri, **Chaddad, Ahmad**, B. Meehan, B. Jean-Claude, J. Rak, and B. S. Abdulkarim, "Temozolomide induced hypermutation in glioma: Evolutionary mechanisms and therapeutic opportunities," *Frontiers in Oncology*, vol. 9, p. 41, 2019.

35 S. Elakshar, J. M. G. Tsui, M. J. Kucharczyk, N. Tomic, Z. S. Fawaz, B. Bahoric, J. Papayanatos, **Chaddad, Ahmad**, and T. Niazi, "Does interfraction cone beam computed tomography improve target localization in prostate bed radiotherapy?" *Technology in Cancer Research & Treatment*, vol. 18, p. 1 533 033 819 831 962, 2019.

36 S. Rathore, M. A. Iftikhar, **Chaddad, Ahmad**, T. Niazi, T. Karasic, and M. Bilello, "Segmentation and grade prediction of colon cancer digital pathology images across multiple institutions," *Cancers*, vol. 11, no. 11, p. 1700, 2019.

37 **Chaddad, Ahmad**, P. Daniel, C. Desrosiers, M. Toews, and B. Abdulkarim, "Novel radiomic features based on joint intensity matrices for predicting glioblastoma patient survival time," *IEEE journal of biomedical and health informatics*, vol. 23, no. 2, pp. 795–804, 2018.

38 **Chaddad, Ahmad**, P. Daniel, and T. Niazi, "Radiomics evaluation of histological heterogeneity using multiscale textures derived from 3d wavelet transformation of multispectral images," *Frontiers in oncology*, vol. 8, p. 96, 2018.

39 **Chaddad, Ahmad**, C. Desrosiers, and T. Niazi, "Deep radiomic analysis of mri related to alzheimer's disease," *IEEE access*, vol. 6, no. 1, pp. 58 213–58 221, 2018.

40 **Chaddad, Ahmad**, M. J. Kucharczyk, and T. Niazi, "Multimodal radiomic features for the predicting gleason score of prostate cancer," *Cancers*, vol. 10, no. 8, p. 249, 2018.

41 **Chaddad, Ahmad**, T. Niazi, S. Probst, F. Bladou, M. Anidjar, and B. Bahoric, "Predicting gleason score of prostate cancer patients using radiomic analysis," *Frontiers in oncology*, vol. 8, p. 630, 2018.

42 **Chaddad, Ahmad**, S. Sabri, T. Niazi, and B. Abdulkarim, "Prediction of survival with multi-scale radiomic analysis in glioblastoma patients," *Medical & biological engineering & computing*, vol. 56, pp. 2287–2300, 2018.

43 **Chaddad, Ahmad**, C. Desrosiers, L. Hassan, and C. Tanougast, "Hippocampus and amygdala radiomic biomarkers for the study of autism spectrum disorder," *BMC neuroscience*, vol. 18, pp. 1–12, 2017.

44 **Chaddad, Ahmad**, C. Desrosiers, and M. Toews, "Multi-scale radiomic analysis of sub-cortical regions in mri related to autism, gender and age," *Scientific reports*, vol. 7, no. 1, p. 45 639, 2017.

45 **Chaddad, Ahmad**, C. Desrosiers, M. Toews, and B. Abdulkarim, "Predicting survival time of lung cancer patients using radiomic analysis," *Oncotarget*, vol. 8, no. 61, p. 104 393, 2017.

46 **Chaddad, Ahmad** and C. Tanougast, "Texture analysis of abnormal cell images for predicting the continuum of colorectal cancer," *Analytical Cellular Pathology*, vol. 2017, no. 8428102, pp. 1–13, 2017.

47 H. Haj-Hassan, **Chaddad, Ahmad**, Y. Harkouss, C. Desrosiers, M. Toews, and C. Tanougast, "Classifications of multispectral colorectal cancer tissues using convolution neural network," *Journal of pathology informatics*, vol. 8, no. 1, p. 1, 2017.

48 **Chaddad, Ahmad**, C. Desrosiers, A. Bouridane, M. Toews, L. Hassan, and C. Tanougast, "Multi texture analysis of colorectal cancer continuum using multispectral imagery," *PloS one*, vol. 11, no. 2, e0149893, 2016.

49 **Chaddad, Ahmad**, C. Desrosiers, L. Hassan, and C. Tanougast, "A quantitative study of shape descriptors from glioblastoma multiforme phenotypes for predicting survival outcome," *The British journal of radiology*, vol. 89, no. 1068, p. 20 160 575, 2016.

50 **Chaddad, Ahmad** and C. Tanougast, "Extracted magnetic resonance texture features discriminate between phenotypes and are associated with overall survival in glioblastoma multiforme patients," *Medical & biological engineering & computing*, vol. 54, pp. 1707–1718, 2016.

51 **Chaddad, Ahmad** and C. Tanougast, "Quantitative evaluation of robust skull stripping and tumor detection applied to axial mr images," *Brain Informatics*, vol. 3, pp. 53–61, 2016.

52 **Chaddad, Ahmad**, "Automated feature extraction in brain tumor by magnetic resonance imaging using gaussian mixture models," *International Journal of Biomedical Imaging*, no. 868031, p. 11, 2015.

53 **Chaddad, Ahmad** and C. Tanougast, "High-throughput quantification of phenotype heterogeneity using statistical features," *Advances in Bioinformatics*, vol. 2015, no. 1, p. 728 164, 2015.

54 **Chaddad, Ahmad** and C. Tanougast, "Real-time abnormal cell detection using a deformable snake model," *Health and technology*, vol. 5, pp. 179–187, 2015.

55 **Chaddad, Ahmad**, "Brain function diagnosis enhanced using denoised fnirs raw signals," *Journal of Biomedical Science and Engineering*, vol. 7, pp. 218–227, 2014.

56 **Chaddad, Ahmad**, "Low-noise front-end receiver dedicated to biomedical devices: Nirs acquisition system," *Circuits and Systems*, vol. 5, pp. 191–200, 2014.

57 **Chaddad, Ahmad**, C. Tanougast, A. Golato, and A. Dandache, "Carcinoma cell identification via optical microscopy and shape feature analysis," *J. Biomedical Science and Engineering*, vol. 6, pp. 1029–1033, 2013.

58 **Chaddad, Ahmad**, C. Tanougast, A. Dandache, and A. Bouridane, "Extracted haralick's texture features and morphological parameters from segmented multispectrale texture bio-images for classification of colon cancer cells," *WSEAS Transactions on Biology and Biomedicine*, vol. 8, no. 2, pp. 39–50, 2011.

## Conference Proceedings

1 Y. Hu and **Chaddad, Ahmad**, "Shap-integrated convolutional diagnostic networks for feature-selective medical analysis," in *50th IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, IEEE, 2025, pp. 1–5.

2 **Chaddad, Ahmad** and Y. Jiang, "Reinforcement learning for medical image classification based on deep deterministic policy gradients," in *2024 IEEE International Symposium on Biomedical Imaging (ISBI)*, IEEE, 2024, pp. 1–4.

3 Y. Jiang, X. Zhao, Y. Wu, and **Chaddad, Ahmad**, "A knowledge distillation-based approach to enhance transparency of classifier models," in *2024 Thirty-Ninth AAAI Conference on Artificial Intelligence*, AAAI, 2024, pp. 1–4.

4 Y. Wu, C. Desrosiers, and **Chaddad, Ahmad**, "Facmic: Federated adaptative clip model for medical image classification," in *International Conference on Medical Image Computing and Computer-Assisted Intervention*, Springer, 2024, pp. 531–541.

5 M. Ben-Akka, C. Tanougast, C. Diou, and **Chaddad, Ahmad**, "An efficient hardware implementation of the double q-learning algorithm," in *2023 3rd International Conference on Electrical, Computer, Communications and Mechatronics Engineering (ICECCME)*, IEEE, 2023, pp. 1–6.

6 **Chaddad, Ahmad**, "A comprehensive analysis of lung sound signals," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 196–197.

7 **Chaddad, Ahmad**, "Acceleration of convolutional neural networks," in *2023 IEEE 23rd International Conference on Bioinformatics and Bioengineering (BIBE)*, IEEE, 2023, pp. 87–93.

8 **Chaddad, Ahmad**, "Stability in radiomics analysis: Advancements and challenges," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 1–5.

9 **Chaddad, Ahmad**, C. He, and Y. Jiang, "Chatgpt: An artificial intelligence-based approach to enhance medical applications," in *2023 IEEE 23rd International Conference on Bioinformatics and Bioengineering (BIBE)*, IEEE, 2023, pp. 439–446.

10 **Chaddad, Ahmad** and Y. Jiang, "Medical metaverse: A new virtual health experience," in *2023 IEEE 23rd International Conference on Bioinformatics and Bioengineering (BIBE)*, IEEE, 2023, pp. 414–421.

11 **Chaddad, Ahmad**, Y. Jiang, and C. He, "Openai chatgpt: A potential medical application," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 210–215.

12 **Chaddad, Ahmad**, Y. Jiang, and O. Jianjie, "Reinforcement learning for enhancing classifier performance," in *2024 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, IEEE, 2023, pp. 1425–1428.

13 **Chaddad, Ahmad**, Y. Katib, and C. Tanougast, "A one-dimensional convolutional neural network model for predicting the survival outcome of coronavirus disease 2019," in *2023 IEEE 20th International Symposium on Biomedical Imaging (ISBI)*, IEEE, 2023, pp. 1–4.

14 **Chaddad, Ahmad**, Y. Katib, and C. Tanougast, "Advances in mri-based radiomics for prostate cancer," in *2023 IEEE 20th International Symposium on Biomedical Imaging (ISBI)*, IEEE, 2023, pp. 1–5.

15 **Chaddad, Ahmad**, Y. Wang, and J. Feng, "Radiomics for a comprehensive assessment of glioblastoma multiforme," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 253–258.

16 **Chaddad, Ahmad** and Y. Wu, "A practical simulation for domain adaptation models," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 203–204.

17 **Chaddad, Ahmad** and Y. Wu, "Domain adaptation in machine learning: A practical simulation study," in *2023 IEEE 35th International Conference on Tools with Artificial Intelligence (ICTAI)*, IEEE, 2023, pp. 754–761.

18 **Chaddad, Ahmad** and Y. Wu, "Enhancing classification tasks through domain adaptation strategies," in *2023 IEEE International Conference on Bioinformatics and Biomedicine (BIBM)*, IEEE, 2023, pp. 1832–1835.

19 **Chaddad, Ahmad**, Y. Wu, and R. Kateb, "Building a better metaverse: How federated learning is revolutionizing virtual worlds," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 205–209.

20 Y. Hu and **Chaddad, Ahmad**, "Boosting classification tasks with federated learning: Concepts, experiments and perspectives," in *2023 IEEE 23rd International Conference on Bioinformatics and Bioengineering (BIBE)*, IEEE, 2023, pp. 147–154.

21 Y. Hu and **Chaddad, Ahmad**, "Potential of federated learning in healthcare," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 1–2.

22 B. Wen and **Chaddad, Ahmad**, "The use of explainable artificial intelligence in medicine," in *2023 IEEE International Conference on E-health Networking, Application & Services (Healthcom)*, IEEE, 2023, pp. 251–252.

23 Y. Li, B. Tan, S. Ding, C. Desrosiers, and **Chaddad, Ahmad**, "Symmetry structured analysis sparse coding for key frame extraction," in *International Conference on Machine Learning for Cyber Security*, Springer Nature Switzerland Cham, 2022, pp. 568–585.

24 **Chaddad, Ahmad**, M. Zhang, L. Hassan, and T. Niazi, "Modeling of textures to predict immune cell status and survival of brain tumour patients," in *2021 IEEE 18th International Symposium on Biomedical Imaging (ISBI)*, IEEE, 2021, pp. 1067–1071.

25 M. Zhang, F. Zhang, J. Zhang, **Chaddad, Ahmad**, F. Guo, W. Zhang, J. Zhang, and A. Evans, "Autoencoder for neuroimage," in *International conference on database and expert systems applications*, Springer International Publishing Cham, 2021, pp. 84–90.

26 **Chaddad, Ahmad**, M. Zhang, C. Desrosiers, and T. Niazi, "Deep radiomic features from mri scans predict survival outcome of recurrent glioblastoma," in *International Workshop on Radiomics and Radiogenomics in Neuro-oncology*, Springer, Cham, vol. 11991, 2020, pp. 36–43.

27 S. Rathore, **Chaddad, Ahmad**, N. H. Bukhari, and T. Niazi, "Imaging signature of 1p/19q co-deletion status derived via machine learning in lower grade glioma," in *Radiomics and Radiogenomics in Neuro-oncology: First International Workshop, RNO-AI 2019, Held in Conjunction with MICCAI 2019, Shenzhen, China, October 13, 2019, Proceedings 1*, Springer International Publishing, 2020, pp. 61–69.

28 M. Zhang, X. Zhao, W. Zhang, **Chaddad, Ahmad**, A. Evans, and J. B. Poline, "Deep discriminative learning for autism spectrum disorder classification," in *Database and Expert Systems Applications: 31st International Conference, DEXA 2020, Bratislava, Slovakia, September 14–17, 2020, Proceedings, Part I 31*, Springer International Publishing, 2020, pp. 435–443.

29 **Chaddad, Ahmad** and T. Niazi, "Radiomics analysis of subcortical brain regions related to alzheimer disease," in *2018 IEEE Life Sciences Conference (LSC)*, IEEE, 2018, pp. 203–206.

30 **Chaddad, Ahmad**, C. Desrosiers, L. Hassan, and M. Toews, "Multispectral texture analysis of histopathological abnormalities in colorectal tissues," in *2016 IEEE International Conference on Image Processing (ICIP)*, IEEE, 2016, pp. 2628–2632.

31 **Chaddad, Ahmad**, C. Desrosiers, and M. Toews, "Gbm heterogeneity characterization by radiomic analysis of phenotype anatomical planes," in *Medical Imaging 2016: Image Processing*, SPIE, vol. 9784, 2016, pp. 568–574.

32 **Chaddad, Ahmad**, C. Desrosiers, and M. Toews, "Local discriminative characterization of mri for alzheimer's disease," in *2016 IEEE 13th International Symposium on Biomedical Imaging (ISBI)*, IEEE, 2016, pp. 1–5.

33 **Chaddad, Ahmad**, C. Desrosiers, and M. Toews, "Phenotypic characterization of glioblastoma identified through shape descriptors," in *SPIE Medical Imaging*, International Society for Optics and Photonics, vol. 9785, 2016, pp. 97852M–97852M.

34 **Chaddad, Ahmad**, C. Desrosiers, and M. Toews, "Radiomic analysis of multi-contrast brain mri for the prediction of survival in patients with glioblastoma multiforme," in *2016 38th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, IEEE, 2016, pp. 4035–4038.

35 K. Kumar, C. Desrosiers, **Chaddad, Ahmad**, and M. Toews, "Spatially constrained sparse regression for the data-driven discovery of neuroimaging biomarkers," in *2016 23rd International Conference on Pattern Recognition (ICPR)*, IEEE, 2016, pp. 2162–2167.

36 A. **Chaddad**, A. Bouridane, L. Hassan, and C. Tanougast, "Wavelet based radiomics for brain tumour phenotypes discrimination," in *Proceedings - CIE 45: 2015 International Conference on Computers and Industrial Engineering*, vol. 2, 2015, pp. 1167–1174.

37 A. **Chaddad**, A. Bouridane, and C. Tanougast, "Continuum analysis of colorectal cancer using texture feature extraction," in *Proceedings - CIE 45: 2015 International Conference on Computers and Industrial Engineering*, vol. 2, 2015, pp. 1423–1430.

38 **Chaddad, Ahmad**, P. O. Zinn, and R. R. Colen, "Radiomics texture feature extraction for characterizing gbm phenotypes using glcm," in *2015 IEEE 12th International Symposium on Biomedical Imaging (ISBI)*, IEEE, 2015, pp. 84–87.

39 H. Haj-Hassan, A. **Chaddad**, C. Tanougast, and Y. Harkouss, "Hybrid segmentation of bio-images," in *Proceedings - CIE 45: 2015 International Conference on Computers and Industrial Engineering*, vol. 2, 2015, pp. 1431–1437.

40 H. Haj-Hassan, **Chaddad, Ahmad**, C. Tanougast, and Y. Harkouss, "Comparison of segmentation techniques for histopathological images," in *2015 Fifth International Conference on Digital Information and Communication Technology and its Applications (DICTAP)*, IEEE, 2015, pp. 80–85.

41 A. **Chaddad**, C. Tanougast, and A. Dandache, "Snake method enhanced using canny approach implementation for cancer cells detection in real time," in *In Proceedings of the International Conference on Biomedical Electronics and Devices*, 2014, pp. 187–192.

42 **Chaddad, Ahmad**, F. Ahmad, M. Amin, P. Sevigny, and D. DiFilippo, "Textural feature selection for enhanced detection of stationary humans in through-the-wall radar imagery," in *Radar Sensor Technology XVIII*, SPIE, vol. 9077, 2014, pp. 123–130.

43 **Chaddad, Ahmad** and R. R. Colen, "Statistical feature selection for enhanced detection of brain tumor," in *Applications of Digital Image Processing XXXVII*, SPIE, vol. 9217, 2014, pp. 260–267.

44 **Chaddad, Ahmad** and C. Tanougast, "Low-noise transimpedance amplifier dedicated to biomedical devices: Near infrared spectroscopy system," in *2014 International Conference on Control, Decision and Information Technologies (CoDIT)*, IEEE, 2014, pp–601.

45 **Chaddad, Ahmad**, P. O. Zinn, and R. R. Colen, "Brain tumor identification using gaussian mixture model features and decision trees classifier," in *2014 48th annual conference on information sciences and systems (CISS)*, IEEE, 2014, pp. 1–4.

46 **Chaddad, Ahmad**, P. O. Zinn, and R. R. Colen, "Quantitative texture analysis for glioblastoma phenotypes discrimination," in *2014 International conference on control, decision and information technologies (CoDIT)*, IEEE, 2014, pp. 605–608.

47 H. Haj-Hassan, **Chaddad, Ahmad**, C. Tanougast, and Y. Harkouss, "Segmentation of abnormal cells by using level set model," in *2014 International Conference on Control, Decision and Information Technologies (CoDIT)*, IEEE, 2014, pp. 770–773.

48 P. Wangaryattawanich, J. Wang, G. A. Thomas, **Chaddad, Ahmad**, P. O. Zinn, and R. R. Colen, "Survival analysis of pre-operative gbm patients by using quantitative image features," in *2014 International Conference on Control, Decision and Information Technologies (CoDIT)*, IEEE, 2014, pp. 625–627.

49 A. **Chaddad**, E. Kamrani, J. L. Lan, and M. Sawan, "Denoising fnirs signals to enhance brain imaging diagnosis," in *2013 29th Southern Biomedical Engineering Conference*, IEEE, 2013, pp. 33–34.

50 A. **Chaddad**, M. Maamoun, C. Tanougast, and A. Dandache, "Hardware implementation of active contour algorithm for fast cancer cells detection," in *29th Southern Biomedical Engineering Conference*, IEEE, 2013, pp. 129–130.

51 M. Boutalbi, M. Frihi, S. Toumi, C. Tanougast, C. Killian, **Chaddad, Ahmad**, and A. Dandache, "Reliable router for accurate online error detection in dynamic network on chip," in *2013 25th International Conference on Microelectronics (ICM)*, IEEE, 2013, pp. 1–4.

52 E. Kamrani, A. **Chaddad**, F. Lesage, and M. Sawan, "Integrated transimpedance amplifiers dedicated to low-noise and low-power biomedical applications," in *29th Southern Biomedical Engineering Conference*, IEEE, 2013, pp. 5–6.

53 A. **Chaddad**, C. Tanougast, A. Dandache, and A. Bouridane, "Classification of cancer cells based on morphological features from segmented multispectral bio-images," in *4th International Conference on Biomedical Electronics and Biomedical Informatics*, 2011, pp. 92–97.

54 **Chaddad, Ahmad**, C. Tanougast, A. Dandache, A. Al Houseini, and A. Bouridane, "Improving of colon cancer cells detection based on haralick's features on segmented histopathological images," in *2011 IEEE international conference on computer applications and industrial electronics (ICCAIE)*, IEEE, 2011, pp. 87–90.

55 **Chaddad, Ahmad**, C. Tanougast, A. Dandache, and A. Bouridane, "Extraction of haralick features from segmented texture multispectral bio-images for detection of colon cancer cells," in *2011 First International Conference on Informatics and Computational Intelligence*, IEEE, 2011, pp. 55–59.

56 A. **Chaddad**, C. Tanougast, A. Dandache, A. Bouridane, J. Charara, and A. Al Houseini, "Classification of cancer cells based on haralick's coefficients using multi-spectral images," in *7th ESBME conference, International Federation for Medical and Biological Engineering*, 2010, pp. 1–4.

## Peer reviewed Abstract Proceedings

1 Y. Katib, B. Royal-Preyra, T. Sasson, A. Chaddad, P. Sargos, B. Bahoric, and T. Niazi, *Hematological changes associated with prostate radiotherapy and androgen deprivation therapy*, 2020.

2 N. Leduc, N. Giraud, G. Gandaglia, R. Mathieu, G. Ploussard, T. Niazi, A. Chaddad, V. Vinh-Hung, P. Sargos, and J.-B. Beauval, *Predicting biochemical recurrence after prostatectomy: Can machine learning beat capra score? results of a multicentric retrospective analysis on 4700 patients*, 2020.

3 P. Daniel, B. Meehan, S. Sabri, A. Chaddad, and et al., *Exploiting molecular subtype cell plasticity as novel strategy for targeting glioma stem cells through alternating therapy*, 2018.

4 A. Chaddad, *Radiomic analysis of gbm patients: A preliminary study for predicting overall survival*, 2016.

5 A. Chaddad, M. Luedi, P. Zinn, and R. Colen, *Texture analysis for assessing of glioblastoma heterogeneity*, 1589, Apr. 2015.

6 A. Chaddad, P. Zinn, and R. Colen, *Wavelet based feature approach for radiomic texture extraction from glioblastoma phenotypes*, Feb. 2015.

7 A. Chaddad, P. Zinn, and R. Colen, *Extraction of phenotype texture features by waveletbased method in glioblastoma*, Mar. 2015.

8 A. Chaddad, P. Zinn, and R. Colen, *Texture feature selection for enhanced assessing of glioblastoma heterogeneous*, Apr. 2015.

9 R. Colen, A. Bakhtiari, A. Chaddad, M. Luedi, and P. Zinn, *Radiomic subclassification of glioblastoma*, O-435, Apr. 2015.

10 R. Colen, M. Luedi, S. Singh, A. Chaddad, A. Bakhtiari, and P. Zinn, *Identification of gene specific mri texture features in first radiogenomic model*, O-430, Apr. 2015.

11 P. Zinn, M. Luedi, S. Singh, A. Chaddad, A. Bakhtiari, E. Sulman, F. Lang, and R. Colen, *Targeting radiogenomics-derived core periostin correlated gene networks in glioblastoma - a novel treatment approach*, May 2015.

12 P. Zinn, A. Chaddad, and R. Colen, *Texture based computational models of glioblastoma phenotypes in radiological images*, 7451, Sep. 2015.

13 P. Zinn, M. Luedi, S. Singh, J. Gumin, A. Chaddad, M. Hatami, A. Shojaee Bakhtiari, F. Lang, and R. Colen, *Functional validation of radiogenomics with a pre-clinical orthotopic glioblastoma model*, 17275, Sep. 2015.

14 O. Ashour, A. Chaddad, P. Zinn, and R. Colen, *Introduction to segmentation, registration and volume analysis for imaging genomics*, eEdE-08, May 2014.

15 A. Chaddad, R. Colen, and P. Zinn, *Carcinoma cells type identification based on the texture analysis*, EP-228, May 2014.

16 A. Chaddad, P. Zinn, and R. Colen, *Abnormal cells discrimination using the different shape parameters*, EP-94, May 2014.

17 A. Chaddad, P. Zinn, and R. Colen, *Brain tumor identification using gaussian mixture model features and decision trees classifier*, O-829, May 2014.

18 R. Colen, A. Chaddad, and P. Zinn, *Integrated imageomic analysis identifies clinically relevant imaging subtypes of glioblastoma*, O-371, May 2014.

## Academic Projects and Theses

### Ph.D. Thesis

2012 **Detection and classification of cancer cell histological images for the development of configurable biomedical instrumentation to assist with real-time diagnostics.** Chaddad, A. *Ph.D. Thesis*. http://www.theses.fr/s188348

### Master's Thesis

2008 **Study of the cyclostationarity in the EMG signal in isometric condition.** Chaddad, A. *Master's Thesis*.

### B.Eng. Project

2007 **Electronic tensiometer.** Chaddad, A. *B.Eng. Project*. https://achaddad.weebly.com/uploads/2/0/6/2/2062368/rapport_finale_de_genie_biomedical.pdf

## Academic Reviewer / Committee Member

### Journals

2010-ongoing **IEEE JBHI, IEEE TNNLS, IEEE TMI, Neuroimage, MIA, IJBI, NEJM, Scientific Reports, PLOS One, Digital Signal Processing, Frontiers in Oncology, Neuroimaging**

### Conferences

**AAAI, CVPR, MICCAI, ICPR, ICIP, ISBI, IPTA**

## Responsibilities

2018 – ongoing **Associate Member**, LIVIA, ETS, Montreal, Canada.

2014 – ongoing **Research Associate**, LCOMS Lab., University of Lorraine, Metz, France.

## Invited Speaker

2023 **Hospital of Guilin Medical College, Guilin, China** Presentation title (June): Artificial intelligence for Personalized Medicine.

**Hospital of Guangxi Zhuang Autonomous Region** Presentation title (June): Artificial intelligence in Healthcare. http://m.gxhospital.com/djwh_wthd/2023/oeEX3ld0.html

2019 **Department of Community Health Sciences, Manitoba University, Canada** Presentation title (Nov.): Artificial intelligence for complex health data.

**School of Artificial Intelligence, Guilin University, China** Presentation title (June): Artificial intelligence for personalized treatment. https://www.guet.edu.cn/sai/info/1012/1049.htm

**Université Laval, Quebec, Canada** Presentation title (Jan.): Deep radiomic analysis for personalized medicine. https://www.ift.ulaval.ca/recherche-et-innovation/seminaires/

## Invited Speaker (continued)

2018 **St. Jude Children's Research Hospital, Memphis, TN, USA** Chalk Talk (Dec.): Radiomics with artificial intelligence for personalized medicine.

**St. Jude Children's Research Hospital, Memphis, TN, USA** Presentation title (Sept.): The development of biomedical imaging's fledgling and future star.

**Cold Spring Harbor Laboratory, NY, USA** Presentation title (July): Deep radiogenomic features for personalized medicine.

**XLIM, University of Poitiers, France** Presentation title (Mar.): Développement radiomiques pour des applications en imagerie biomédicale.

2017 **Marshall University, Huntington, WV, USA** Presentation title: Deep learning and machine learning applications for medical images.

**McGill University Health Centre, Montreal, Canada** Presentation title: Development of radiomic applications for oncologic imaging.

**Radiomic Symposium, Princess Margaret Cancer Centre, Toronto, Canada** Presentation title: Radiomic application on medical images.

2016 **International Summit on Biomarkers and Therapeutic Advances in Radiation Oncology, McGill University, Montreal, Canada** Presentation title: Radiomic analysis of GBM patients.

2014 **Seminar at the LCOMS Laboratory, University of Lorraine, Metz, France** Presentation title: Continuum analysis of colorectal pathology tissues.