



Prof. Dr. Mohamed Batouche

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Curriculum vitae

Prof. Dr. Mohamed Batouche



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General Information

First Name: Mohamed

Last Name: Batouche

Date of Birth: 18 April 1964

Place of Birth: Constantine, Algeria

Permanent Address: 08 Rue Ernesto Ché Guévara, 25000 Constantine, Algeria

Position: professor of Computer Science

Position of Responsibility: Head of Computer Science Department

Marital status: Married

No. of Children: 2

Education

1983-1988

University of Constantine, Algeria

Degree: Engineer in Computer Science

Graduation project: 'Specification and Verification of Communication Protocols using Affirm'

1988-1989

University of Nancy, France

Degree: Master in Computer Science (DEA)

Thesis: 'Logic Programming, Unification and Disunification'.

1989 – 1993

University of Nancy - INPL, France

Degree: Ph.D.

Thesis: 'A computer vision system for moiré images interpretation' with honors.

Experience

ATER (Teacher/Researcher), 1992 – 1993

University of Nancy, France

Assistant Professor, 1993 – 1997

Department of Computer Science

University of Constantine, Algeria

Associate Professor, 1997 – 2003

Department of Computer Science

University of Constantine, Algeria

Professor, 2003 – present (2018)

Department of Computer Science

University of Constantine, Algeria

Professor, 2006 – 2011

Department of Software Engineering, CCIS

King Saud University, Kingdom of Saudi Arabia

Teaching Experience

Courses taught at University of Constantine, Constantine, Algeria, and abroad:

– **Master & PhD Courses**

- Big Data Analytics (Hadoop MapReduce, Apache Spark Platform, MLlib)
- Complex systems (Emergence, Self-organization, bio-inspired computing)
- Machine Intelligence and Deep learning
- Cloud and Parallel Computing (Open-MP, MPI, Virtualization)
- Software engineering
- Bioinformatics

– **Undergraduate Courses**

- Artificial Intelligence
- Expert Systems
- AI programming languages: Prolog, Lisp and CLIPS
- Software Engineering
- Software Testing and Validation
- Software Quality Assurance
- Project Management
- Algorithms and Data Structures
- Programming Paradigms
- Programming in Java
- Data Analysis
- Probability and Statistics

Research Activities

We are pursuing very active research in various theoretical and practical areas in Artificial Intelligence and Complex Systems Science among which:

- Machine Intelligence and Deep Learning
- Complex Systems and Nature Inspired Computing
- Big Data Analytics
- Bioinformatics
- Cloud Computing
- Quantum Computing
- Security

In our research, we are interested by investigating new computing paradigms and emergent technologies for problem solving. Although conventional computing methods and techniques have led to a spectacular development in building software systems, they are rather limited to face the growing complexity of software systems. Computational Intelligence, Nature inspired Computing and Modern Machine Learning constitute the core research interest and expertise.

The nature inspired computing paradigm explores and relies upon biologically and socially inspired systems in which complex behavior at the global level emerges in a nonlinear manner from large numbers of low level component interactions. The aim is to understand and make use of these emergent phenomena to develop new ways of generating computer systems which are self-adapting, self-organizing, and evolving. Although still very young, research on emergence has resulted in successes both in understanding and designing such systems. Using nature inspired computing and emergence reduce considerably the algorithmic complexity through software that is simpler and flexible compared to conventional software development techniques.

In addition, in conjunction with the core research interests, work on quantum inspired evolutionary algorithms, Deep learning, big data analytics, bioinformatics and Networking was undertaken.

In this context, I have supervised and co-supervised over 80 PhD and M.Sc. theses to completion and graduation. I have also supervised and co-supervised over 50 BSc Projects in various computer science fields. We have published more than 200 research papers in International Journals and Conferences.

Master Theses:

Graduates (The list is not exhaustive)

1. S. Ouadfel, "Analysis and interpretation of color cytological images", December 1997.
2. I. Boussebough, "face recognition using artificial neural networks and genetic algorithms", 1998.
3. F. Djaiz, "Connexionism, dynamic systems and chaos", M. Batouche, 2001.
4. R. Baghriche, "A connexionist system for arabic speech recognition", 2001.
5. L. Foughali, "Image fusion using Cellular neural networks", 2002.
6. M. Benkiniouar, "Using Cellular Automata for Combinatorial optimisation", 2002.
7. A. Later, "Object tracking and detection in video sequences", 2002.
8. A. Lemouari, "Image registration for image fusion using evolutionary algorithms ", 2002.
9. R. Lehtihet, "Content-based image retrieval", 2002.
10. H. Belaid, "Artificial neural network for combinatorial optimization : application in image segmentation", 2002.
11. O. Ghebghoub, "Artificial life and optimization", 2003.
12. K. Khalfaoui, "Color image segmentation by using cellular neural networks", 2003.
13. Hichem Talbi, "Incremental learning of spatio-temporal patterns using Chaotic neural networks", 2003.
14. N. Mezhoud, "Color image segmentation using fuzzy-connexionist approaches", 2003.
15. E. Bendiab, "Image registration using artificial immune systems", 2003.
16. L. Djerou, "Image segmentation by emergence", 2003.

17. H. Bentounsi, "Incremental learning using support vector machines", 2003.
18. A. Boubendir, "Color Image Segmentation based on Self-Organization", July 2004.
19. C. Remache, "Satellite Image Restoration", July 2004.
20. K. Touil, "Multi-views image registration for 3D Object reconstruction", October 2004.
21. A. Draa, "A New Approach for MultiModal image registration based on Quantum Computing and Evolutionary Algorithms", November 2004.
22. F. Sahli, "Combinatorial Optimization using Quantum Computing. Case Study: Travelling Salesman Person", November 2004.
23. Hassiba Talbi, "Aligning Images using Particle Swarm Optimization", December 2004.
24. K. Ghanem, "A new method for dense image registration", February 2005.
25. B. Fergani, "Motion Estimation for augmented reality", April 2005.
26. M. Bencheikh El-hocine, "A new method of finger tracking applied to the magic board", May 2005.
27. T. Djouad, "Face to Face Collaborative Augmented Reality Systems", May 2005.
28. R. Boutine, "Incremental Learning Based on Ontogenic Neural Networks. Case Study: Robot Navigation", June 2005.
29. E. Kerkouche, "Incremental learning of games strategies", June 2005.
30. D. Boukhrouf, "co-evolution based image segmentation", October 2005.
31. M. Abdessemed, "Global Behavior from local interactions", June, 2006.
32. S. Labeled, "Complex adaptive systems", June 2006.
33. K. Aksa, "DNA computing for problem solving", June 2006.
34. A. Dib, "View Synthesis for Augmented Reality Applications", September 2006.

35. Z. Hmidi, "Image Alignment by emergence", October 2006.
36. S. Mahdi, "Hybridization of metaheuristics and exact methods for multiobjective combinatorial optimisation", June 2007.
37. N. Mounib, "Image enhancement using Co-evolutionary algorithms", July 2007.
38. L. Saadi, "Multiobjective optimisation and genetic programming", July 2007.
39. S. Haitaamar, "Recognition of printed Arabic using a novel segmentation technique", July 2007.
40. S. Selatnia, "Edge detection using evolutionary cellular automata", July 2007.
41. A. Cheriet, "Hybrid Metaheuristics for Multiobjective Optimisation", November 2007.
42. A. Benali, "Image Segmentation using MultiObjective Optimisation approaches", November 2007.
43. Elham Kawlani, "Incremental learning using Probabilistic Neural Networks and its application to face recognition", July 2008.
44. Nabil Kadache, "A Multi-Agent System for Tracking Moving Objects", September 2008.
45. Asma Badr Al Saleh, "On-Line Arabic Handwriting Character Recognition Using Support Vector Machines", February 16, 2009.
46. Farid Bekkari, "Solving Complex Problems using Distributed Optimization", February 18, 2009.
47. Rana Al-Murshed, "Applying Danger Theory in Denial of Service Attack Detection", June 23, 2009.
48. Amani Al-Hussaini, "Image Enhancement using Evolving Cellular Automata", February 2, 2011.
49. Amir Djenna, "Network security based on bio-inspired approaches", February 2014.
50. Mohamed Sandeli, "bio-inspired algorithms for solving image processing problems", February 2014.

51. Badr-eddine Miles, "Solving complex problems using controlled self-organization", May 2014.

52. Safia Laaziz, "Solving Max-Sat problems using bio-inspired algorithms", June 2014.

53. Mohamed Skander Daas, Object Tracking using Bacterial Foraging Optimisation, June 2014.

54. Karima Sid, "Solving Problems in Bioinformatics by Classification and Prediction", May 2014.

55. Hadjer Fellah, "Security in Cloud Computing", July 2014.

56. Fatima Messaoudi Fatima, "image processing by self-controlled emergence", October 2014

57. Nacira Sahel Daiboun, "service composition in the context of pervasive computing", January 2016.

58. Mohamed Kosrane, "Service discovery in Peer to Peer Cloud", February 2016.

Master Projects:

Besides Master Theses, I have supervised more than 20 Master Projects in computer science.

PhD Theses

Graduates

1. Fella Hachouf, Fuzzy logic contributions for the resolution of specific problems in image segmentation, October 09, 2004. Doctorat d'Etat. (Currently, professor - University of Constantine).
2. Salim Chikhi, Contributions of soft-computing for lithology identification in the Algerian Sahara, October 1, 2005. Doctorat d'Etat. (Currently, professor - University of Constantine).
3. Bachir Boucheham, Data reduction in temporel series by curve simplification approaches for events detection and compression: application to ECG data, September 10, 2005. (Currently, professor - University of Skikda).
4. Mohamed Bachir Menai, Co-evolutionary local search for MAX-SAT, ISAT and PSAT problems, September 10, 2005. (Currently, professor - CCIS - KSU).
5. Kamal Eddine Melkemi, MRF-based image segmentation using Evolutionary algorithms, June 08, 2006. (Currently, Professor – University of Biskra).
6. Salima Ouadfel, Image segmentation using Ant Colony optimisation metaheuristic, July 04, 2006. (Currently, Associate professor - University of Constantine).
7. Said Talhi, Integration of cooperation and intelligence in distant learning environments, March 3, 2007 (Currently, Associate professor - University of Batna).
8. Z. Aliouat, Formal Analysis of fault Tolerant Algorithm in the time-triggered Architecture, July 11, 2007. (Currently, Associate professor - University of Setif).
9. Sihem Mostefai, Mechanical product data exchange and integration for PLM, November 21, 2007. Doctorat d'Etat (Currently, Associate professor - University of Constantine 2).
10. Smaine Mazouzi, Adaptive Multi-agent System for image segmentation and 3D reconstruction, May 18, 2008. (Currently, Associate professor - University of SKikda).
11. Brahim Nini, Collaborative augmented reality, June 26, 2008. (Currently, Professor - University Larbi Ben M'hidi - Oum El Bouaghi).
12. Mourad Bouzenada, Real-time augmented reality systems, June 26, 2008. (Currently, Associate professor - University of Constantine 2).
13. Mohamed Aichour, Analysis of genetic operators for evolutionary algorithms, July 6, 2009. (Currently, Assistant professor - University of Guelma).

14. Faiza Saheb, Designing Complex Systems Using Multi-agent System Approach, September 23, 2009. (Currently, Assistant professor - University of Annaba).
15. Hichem Talbi, Image Processing using Quantum Computing and evolutionary algorithms, October 27, 2009. (Currently, Assistant professor - University of Constantine 2).
16. Leila Djerou, Learning and adaptation in Bio-inspired Systems, October 7, 2010. (Currently, Associate Professor, University of Biskra).
17. Salim Bitam, Bees' system-based topology discovery for mobile ad-hoc networks, January 25, 2011. (Currently, Associate Professor, University of Biskra)
18. Anouar Boucheham, Biomarkers and ncRNA identification based on Computational Intelligence Approaches, June 25, 2016. (Currently, Assistant Professor, University of Constantine 3)
19. Zakaria Benmounah, Big Data Clustering of Multi-level Omics Data Sets, March 04, 2017. (Currently, Assistant Professor, University of Constantine 2)
20. Madjed Bencheikh Lehocine, Autonomic Network Management of IP networks based on SDN management logic, February 22, 2018. (Currently, Assistant Professor, University Center of MILA)
21. Chaouki Boufenar, Bio-inspired Computing and Deep Learning Techniques for Hand Written Character Recognition, March 01, 2018. (Currently, Assistant Professor, University of Algiers 1)
22. Mohamed Abdou Bouteldja, Image processing and analysis based on computational intelligence and game theory, May 12, 2018. (Currently, Assistant Professor, University of Constantine)
23. Soumia Zertal, bio-inspired Algorithms for Cloud Service Composition, May 14, 2018 (Currently, Assistant Professor, University Larbi Ben M'hidi - Oum El Bouaghi)
24. Rostom Mennour, Improving parallel and distributed computing in Big Data Analytics, July 3, 2018.
25. Adlen Kerboua, Improving Industrial Security by using Machine and Deep Learning, July 8, 2018
26. Khalid Ghouli, A neural-based method for optical flow estimation using phase correlation, July 11, 2018.

Current

1. Oulladji Latifa, Détection du Texte Arabe En Utilisant Les Méthodes Statistiques et d'Apprentissage Automatique, (expected graduation September 2018).
2. Meriem Korichi, Semantic Based Image retrieval, (expected graduation October 2018)
3. Safia Djemame, Solving Reverse Emergence with Quantum PSO – Application to image processing, (expected graduation October 2018).
4. Abdelbasset Boukelia, On the role of epigenetics in diagnosing genetic diseases, (expected graduation 2019)
5. Oussama Hannache, Security in Cloud Computing and Software Defined Networking, (Expected graduation 2019)
6. Karima SID, Virtual Screening for Drug Discovery in Big Data context, (expected graduation 2019)
7. Fellah Hadjer, Optimization and Security in Mobile Cloud Computing, (expected graduation 2019)
8. Cherif Taouche, Multimodal Biometric Systems, (expected graduation 2019)
9. Meriem Bahi, Drug Design and Repositioning in Big Data context, (expected graduation 2020)
10. Brahim Matougui, Next Generation Sequencing and Metagenomics, (Expected graduation 2020)

Publications

2017-2018

1. Adlen Kerboua, Abderrezak Metatla, Ridha Kelaiaia and Mohamed Batouche, Real-time safety monitoring in the induction motor using deep hierarchic long short-term memory, The International Journal of Advanced Manufacturing Technology, Springer-Verlag London Ltd., part of Springer Nature 2018. <https://doi.org/10.1007/s00170-018-2607-4>
2. Safia Djemame, Mohamed Batouche, A Hybrid Metaheuristic Algorithm Based on Quantum Genetic Computing for Image Segmentation, Springer International Publishing AG, part of Springer Nature 2018, S. Bhattacharyya (ed.), Hybrid Metaheuristics for Image Analysis, pp. 33-48, 2018.
3. Zakaria Benmounah, Souham Meshoul, Mohamed Batouche and Pietro Lio, Parallel Swarm Intelligence Strategies for Large-scale Clustering based on MapReduce with Application to Epigenetics of Aging, Applied Soft Computing, Elsevier, 69(2018):771-783.
4. Safia Djemame, Mohamed Batouche, Hamouche Oulhadj, Patrick Siarry, Solving Reverse Emergence with Quantum PSO - Application to Image Processing, to appear in: Soft Computing, Springer, 2018.
5. Meriem Korichi, Mohamed Lamine Kherfi, Mohamed Batouche, Khadra Bouanane, Extended Bayesian generalization model for understanding user's intention in semantics based images retrieval; to appear in: Multimedia Tools and Applications, Springer, 2018.
6. Chaouki Boufenar, Adlen Kerboua and Mohamed Batouche, Investigation on Deep Learning for Online Handwritten Arabic Character Recognition, [Cognitive Systems Research](#), Elsevier, Vol. 50, pages 180-195, August 2018. <https://doi.org/10.1016/j.cogsys.2017.11.002>
7. Chaouki Boufenar, Mohamed Batouche & Marc Schoenauer, An artificial immune system for offline isolated handwritten arabic character recognition, [Evolving Systems](#), Springer, Vol 9, issue 1, pp. 25-41, 2018. DOI 10.1007/s12530-016-9169-1
8. Latifa Oulladji, Kamel Feraoun, Mohamed Batouche and Ajith Abraham, Arabic text detection using ensemble machine learning, to appear in: International Journal of Hybrid Intelligent Systems, IOS Press, 2018.
9. Adlen Kerboua, Mohamed Batouche, 3D Skeleton Action Recognition for Security Improvement, to appear in: International Journal of Intelligent Systems and Applications (IJISA), 2018.
10. Meriem Bahi and Mohamed Batouche, Drug-Target Interaction Prediction in Drug Repositioning based on Deep Semi-Supervised Learning, in the proceedings of CIIA'2018, Springer, pp.302-313, 2018.
11. Meriem Korichi, Mohammed Lamine Kherfi, Mohamed Batouche, Zineb Kaoudja and Hadjer Bencheikh, Understanding user's intention in semantic based image retrieval: combining positive and negative examples, in the proceedings of CIIA'2018, Springer, pp. 66-77, 2018.
12. Karima Sid and Mohamed Batouche, Ensemble Learning for Large Scale Virtual Screening on Apache Spark, in the proceedings of CIIA'2018, Springer, pp. 244-256, 2018.
13. Meriem Bahi and Mohamed Batouche, Deep Semi-Supervised Learning for DTI Prediction Using Large Datasets and H2O-Spark Platform. In: [The Third international conference on intelligent systems and computer vision \(ISCV\)](#), Fez, Morocco, 2018. IEEE Press.

14. Khalid Ghoul, Mohamed Berkane, Mohamed Chaouki Batouche, A neural-based method for optical flow estimation using phase correlation, *International Journal of Computational Vision and Robotics*, Inderscience, 2018 (In Press).
15. Bencheikh El Hocine Madjed and Mohamed Batouche, Achieving efficiency in Autonomic Network Management of IP networks based on SDN management logic, Inderscience – [International Journal of Communication Networks and Distributed Systems](#) (In Press), 2018.
16. Mohamed Abdou Bouteldja, Mohamed Baadeche, Mohamed Batouche, Multilevel Thresholding for Image Segmentation based on Cellular Metaheuristics, to appear in *International Journal of Applied Metaheuristic Computing – IGI Global*, 9(4), 2018.
17. Soumia Zertal and Mohamed Batouche, A Novel Self-Organization Approach for Stigmergy based Cloud Service Composition, to appear in *International Journal of Applied Metaheuristic Computing – IGI Global*, 9(3), 2018.
18. Rostom Mennour and Mohamed Batouche, Novel Scalable Deep Learning Approaches for Big Data Analytics Applied to ECG Processing, to appear in *International Journal of Applied Metaheuristic Computing – IGI Global*, 9(4), 2018.
19. Soumia Zertal and Mohamed Batouche, Cloud service composition based on improved genetic algorithm, 3rd International Conference on Networking and Advanced Systems (ICNAS), pp. 43-48, 13-14 December 2017, Badji Mokhtar University, Annaba, Algeria. ISBN 978-9931-9142-0-4.
20. Bencheikh El Hocine Madjed and Mohamed Batouche, Resource Usage Optimization and Virtual Broadcast Domains Isolation in SDN Networks, 3rd International Conference on Networking and Advanced Systems (ICNAS), pp. 49-54, 13-14 December 2017, Badji Mokhtar University, Annaba, Algeria. ISBN 978-9931-9142-0-4.
21. Abdelbasset Boukelia, Zakaria Benmounah, Mohamed Batouche, Bouchera Maati, Ikram Nekkache, A Novel Algorithm for CpG Island Detection in Human Genome Based on Clustering and Chaotic Particle Swarm Optimization, In: Bracciali A., Caravagna G., Gilbert D., Tagliaferri R. (eds) [Computational Intelligence Methods for Bioinformatics and Biostatistics](#). CIBB 2016. Lecture Notes in Computer Science, vol. 10477. Springer, Cham, 2017.

2016-2017

22. A. Boucheham, V. Somnard, F. Zehraoui, A. Boualem, M. Batouche, et al. (2017), IpiRId: Integrative approach for piRNA prediction using genomic and epigenomic data, [PLOS ONE 12\(6\): e0179787](#). <https://doi.org/10.1371/journal.pone.0179787>
23. Bencheikh El Hocine Madjed and Mohamed Batouche, Flexibility of managing VLAN filtering and segmentation in SDN networks, [IEEE International Symposium on Networks, Computers and Communications \(ISNCC\)](#), IEEE Press, 2017.
24. Chaouki Boufenar, Adlen Kerboua and Mohamed Batouche, Pretrained Deep Convolutional Neural Networks for Online Isolated Handwritten Arabic Character Recognition, In proceedings of Le 14ème Colloque International sur l'Optimisation et les Systèmes d'Information (COSI), 2017.
25. Amina Lemsara, Salima Ouadfel and Mohamed Batouche, A Comprehensive Taxonomy for OMICS Data Integration and Analysis Methods. In proceedings of Le 14ème Colloque International sur l'Optimisation et les Systèmes d'Information (COSI), 2017.

26. Boufenar Chaouki and Mohamed Batouche, Investigation on Deep Learning for Off-line Handwritten Arabic Character Recognition Using Theano Research Platform, In the proceedings of [the second conference on Intelligent Systems and Computer Vision \(ISCV\)](#), Fes, Morocco, IEEE Press.
27. Amina Lemsara, Salima Ouadfel and Mohamed Batouche, Multi-View clustering with local refinement for cancer patient stratification. In: [The Second international conference on intelligent systems and computer vision \(ISCV\)](#), Fez, Morocco, 2017. IEEE Press.
28. Mohamed Abdou Bouteldja and Mohamed Batouche, A study on differential evolution and cellular differential evolution for multilevel color image segmentation, [In the proceedings of the Second international conference on intelligent systems and computer vision \(ISCV\)](#), Fes, Morocco, 2017. IEEE Press.
29. Zakaria Benmounah, Souham Meshoul, Mohamed Batouche: Scalable Differential Evolutionary Clustering Algorithm for Big Data Using Map-Reduce Paradigm. *Int. J. of Applied Metaheuristic Computing* 8(1): 45-60 (2017).
30. Anouar Boucheham and Mohamed Batouche, Hybrid Wrapper/Filter Gene Selection using an Ensemble of classifiers and PSO Algorithm, *International Journal of Applied Metaheuristic Computing*, 8(2): 22-37 (2017).
31. Karima Sid, Mohamed Batouche, Big Data Analytics Techniques in Virtual Screening for Drug Discovery, In proceedings of the [2nd International Conference on Big Data, Cloud and Applications \(BDCA'17\)](#), ACM Press.
32. Soumia Zertal, Mohamed Batouche, A Hybrid Approach for Optimized Composition of Cloud Services, In proceedings of the [2nd International Conference on Big Data, Cloud and Applications \(BDCA'17\)](#), ACM Press.
33. Chaouki Boufenar and Batouche Mohamed, OIHACDB: A new database for offline isolated handwritten Arabic character recognition. In 13^{ème} Colloque sur l'Optimisation et les Systèmes d'Information COSI'2016, pages 20–21, 2016.

2015-2016

34. Oussama Hannache and Mohamed Batouche, "[Cloud Simulation Model Based on Large Numbers Law for Evaluating Fault Tolerance Approaches](#)", to appear in the proceedings of 4th International Symposium on Modelling and Implementation of Complex Systems, May 7-8, 2016, Constantine, Algeria, Lecture Notes in Networks and Systems - LNNS, Springer, **2016**.
35. Safia Djemame and Mohamed Batouche, "[Quantum Genetic Computing and Cellular Automata for Solving Edge Detection](#)", to appear in the proceedings of ICCSA'2016 – the first International Conference on Computer Science's Complex Systems and their Applications, Oum El Bouaghi, Algeria, April 12 -14, **2016**.
36. Anouar Boucheham, Mohamed Batouche and Souham Meshoul. "[Robust hybrid wrapper/filter biomarker discovery from gene expression data based on generalized island model](#)". *Int. J. of Computational Biology and Drug Design*, vol. 8, no. 3, pp. 251-274, **2015**.
37. Mohamed Skander Daas, Salim Chikhi, Mohamed Batouche, "[Bacterial foraging optimization with double role of reproduction and step adaptation](#)", In Proceedings of the International Conference on Intelligent Information Processing, Security and Advanced Communication – IPAC'15, ACM Press, **2015**.

38. Rostom Mennour, Mohamed Batouche, Oussama Hannache, "[MR-SPS: Scalable parallel scheduler for YARN/MapReduce platform](#)". In the proceedings of the IEEE International Conference on Service Operations And Logistics, And Informatics (SOLI), **2015**. pp. 199-204.
39. Oussama Hannache and Mohamed Batouche, "[Probabilistic model for evaluating a proactive fault tolerance approach in the cloud](#)", In the proceedings of the IEEE International Conference on Service Operations And Logistics, And Informatics (SOLI), **2015**, pp. 94-99.
40. Rostom Mennour and Mohamed Batouche, "[Drug discovery for breast cancer based on big data analytics techniques](#)". In proceedings of the 5th International Conference on Information & Communication Technology and Accessibility, ICTA 2015, Marrakech, Morocco, December 21-23, 2015. IEEE **2015**, ISBN 978-1-4673-8749-1.
41. Anouar Boucheham, Mohamed Batouche, and Souham Meshoul. "[An Ensemble of Cooperative Parallel Metaheuristics for Gene Selection in Cancer Classification](#)". In: Bioinformatics and Biomedical Engineering – IWBBIO'2015. Springer International Publishing, **2015**. p. 301-312.
42. Ahlam Kourid and Mohamed Batouche, "[Biomarker Discovery Based on Large-Scale Feature Selection and MapReduce](#)". CIIA 2015: 81-92, IFIP Advances in Information and Communication Technology, Volume 456, Springer, **2015**.
43. Anouar Boucheham, Mohamed Batouche, "[Massively Parallel Feature Selection Based on Ensemble of Filters and Multiple Robust Consensus Functions for Cancer Gene Identification](#)", Studies in Computational Intelligence 591, Springer, **2015**.
44. Rostom Mennour and Mohamed Batouche, "Online Prediction of Heart Diseases Risk Using Spark Streaming", in proceedings of the International Conference on Pattern Analysis and Intelligent Systems – PAIS'15, October 26-27, **2015**, Tebessa, Algeria.
45. K. Bendiab, M. Benmohammed, M. Batouche, A Novel Access Control Model for Securing Cloud API, in the proceedings of the second International Conference on Networking and Advanced Systems (ICNAS 15), pp. 67-73, 06-07 Mai 2015, Annaba, Algeria.
46. A. Kerboua, M. Batouche, RGB-D based real time approach for robot navigation, in the 3rd International Conference on Signal, Image, Vision and their Applications (SIVA'15), guelma, Algeria, 2015.

2013–2014

47. Zakaria Benmounah, Souham Meshoul, Mohamed Batouche, "[Cooperative Parallel Multi Swarm Model for Clustering in Gene Expression Profiling](#)". ICSI Part I, LNCS 8794, **2014**: 450-459, Springer.
48. Anouar Boucheham and Mohamed Batouche. "[Robust biomarker discovery for cancer diagnosis based on meta-ensemble feature selection](#)". In: Science and Information Conference (SAI), 2014. IEEE, **2014**. p. 452-560.
49. Mohamed Sandeli and Mohamed Batouche, "[Multilevel thresholding for image segmentation based on parallel distributed optimization](#)". SoCPaR 2014: 134-139, IEEE Press, **2014**.
50. Anouar Boucheham and Mohamed Batouche. "Breast Cancer Classification Approach based on Biomarker Discovery and Ensemble of Classifiers". In: CISC **2014**.
51. Mohamed Skander Daas and Mohamed Batouche, "[Multi-bacterial foraging optimization for dynamic environments](#)". SoCPaR 2014: 237-242, IEEE Press, **2014**.

52. Meroua Daoudi, Soumiya Hamena, Zakaria Benmounah, Mohamed Batouche, "[Parallel differential evolution clustering algorithm based on MapReduce](#)". SoCPaR **2014**: 337-341, IEEE Press, 2014.
53. Mohamed Abdou Bouteldja and Mohamed Baadeche, Mohamed Batouche, "[A novel approach for image denoising based on evolutionary game theory](#)". IPTA 2014: 62-67, IEEE press, **2014**.
54. Chérif Taouche, Mohamed Batouche, Mohamed Berkane, Abdelmalik Taleb-Ahmed, "[Multimodal biometric systems](#)", In the proceedings of the International Conference Multimedia Computing and Systems (ICMCS), pp. 301-308, IEEE Press, **2014**.
55. Amir Djenna and Mohamed Batouche, "[Security problems in cloud infrastructure](#)". In the proceedings of the International Symposium on Networks, Computers and Communications, pp. 1-6, IEEE Press, **2014**.
56. Madjed Bencheikh Lehocine and Mohamed Batouche, "[Self-management in IP networks using autonomic computing](#)". In the proceedings of the International Conference and Workshop on the Network of the Future (NOF), pp. 1-3, IEEE Press, **2014**.
57. C. Taouche, M. Batouche, M. Chemachema, A. Taleb-Ahmed, M. Berkane, "[New face recognition method based on local binary pattern histogram](#)". In the proceedings of the International Conference on Sciences and Techniques of Automatic Control and Computer Engineering (STA), pp. 508-513, IEEE Press, **2014**.
58. Khalid Ghoul, Mohamed Berkane, Mohamed Batouche, "[Neuronal approach for motion estimation in frequency domain](#)", In the proceedings of the International Conference on Multimedia Computing and Systems (ICMCS), pp. 241 – 245, IEEE Press, **2014**.
59. Soumia ZERTAL, Badr-eddine MILES, and Mohamed BATOUCHE, "Complex Problem Solving using Self-organization Mechanisms", In proceedings of ISIA 2014, The first International Symposium on Informatics and its Applications, February 25-26, **2014**, M'sila, Algeria.
60. Zakaria Benmounah and Mohamed Batouche, "[A Parallel Distributed System for Gene Expression Profiling Based on Clustering Ensemble and Distributed Optimization](#)". ICA3PP Part I, LNCS 8285, 2013: 176-185, Springer, **2013**.
61. Meriem Korichi, Mohammed Lamine Kherfi, Mohamed Batouche, "[Vers une meilleure prise en charge de l'utilisateur en recherche d'images](#)" (in French), in proceedings of the International Conference on Artificial Intelligence and Information Technology – ICAIT'14, Ouargla, Algeria, **2014**.

2011-2012

62. Shawkat Ali, Noureddine Abbadeni and Mohamed Batouche, "Multidisciplinary Computational Intelligence Techniques: Applications in Business, Engineering, and Medicine", IGI Global, **2012**.
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Research Projects

I have Conducted and participated in many National and International Research projects among which:

- **CNEPRU Projects 1994-1996, 1997-1999, 2000-2003, 2004–2006, 2015-2018: National Research Projects.**
- **Accord Programme CMEP - TASSILI (2005-2007):** Collaboration with OPAC Team on the Project entitled « Metaheuristics for Optimization of Hard Problems».
- International Action - INRIA 3+3 Méditerranée PERFORM (2006-2009): INRIA Joint Project on Multiobjective Optimization for Problem Solving and Decision Support.
- Research project with the center of excellence in Information assurance, the project is entitled: “Evolving Connectionist System for Signature Recognition”, Feb. 2009.

I was involved in many Projects and collaborations:

- TEMPUS - MEDA (2004-2006): projects between the higher education sector in the EU and its 26 partner countries.
- **SARIMA (2005-2006):** Support for the Activities of Research in Informatics and Mathematics financed by French foreign office Ministry.
- CRBt (2015-2018): Collaboration with the National Center on Biotechnology in the field of Bioinformatics – application to Drug discovery and repositioning, Genomic Selection in plants and animals, and personalized medicine.

I am also participating in many international journals either as associate editor or reviewer:

- Associate editor for Journal of King Saud University – Computer and Information Sciences.
- Reviewer for IEEE Transactions on Computational Biology and Bioinformatics, Pattern Analysis and Application (PAA – Springer), IGI – Global Journals, Briefings in Bioinformatics, ...

Contacts and Collaborations

During the last years, collaborations and contacts have been established with several research groups over the world (France, Canada, Australia, and USA), among which:

- Computer Vision Group, University of Windsor, Canada: Prof. Boubakeur Boufama
- Emory University, Atlanta, USA: Dr. Stefan Boettcher
- CERRAL Laboratory, University Lyon II, France: Prof. Abdelaziz Bouras
- LIP6, University Paris VI, France: Prof. Zahia Guessoum
- LIRIS Laboratory, University Claude Bernard, France: Prof. Salima Hassas
- University of Regina, Canada: Prof. Malek Mouhoub
- University of Western Australia, Australia: Prof. Mohammed Bennamoun
- University of Evry-Val-d'Essone, France: Dr. Fariza Tah
- University of Cambridge, UK: Prof. Pietro Lio

Awards and Honors

- Award for Best Researcher, College of Computer and Information Sciences, KSU, 2007

Administrative

- **Head of the Computer Science Department** – University of Constantine 2
- **University Quality Assurance officer**, University of Constantine 2.
- **Responsible of the Bioinformatics PhD programme**, University of Constantine 2, Research Center in Biotechnology – CRBt, CERIST.
- Departmental Research coordinator.
- Academic Advising – Department of Software Engineering
- Member of Committee of Quality and Accreditation – SwE Dept.
- Responsible of Committee of Development – SwE Dept.
- Responsible of Committee of Graduate Studies & Research – SwE Dept.
- Responsible of Internship committee – SwE Dept.
- Member of Scientific and Research Unit (SRU – CCIS)
- Member of CCIS Research Center Council
- Bachelor and MSc programme leader – Computer Science Dept.
- Member of scientific and technical committees of International conferences and journals.
- Member of several boards of examiners for PhD and MSc theses.
- Reviewer for many international journals: Elsevier, Oxford Journals, ...

Interests

- Nature
- Sport
- Reading

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Available on request