



Sabeur ARIDHI

Associate Professor (Maître de conférences)
University of Lorraine, France

PERSONAL DATA

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EDUCATION

JUL. 2016 University diploma "Teaching in higher education"
ESPE, Blaise Pascal University, Clermont Ferrand, France
NOV. 2013 Ph.D. in COMPUTER SCIENCE
Doctoral School of Engineering Sciences
Blaise Pascal University, Clermont Ferrand, France
Topic: Distributed frequent subgraph mining in the cloud
Advisors: Prof. Engelbert Mephu Nguifo, Dr. Laurent d'Orazio and Prof. Mondher Maddouri
Defense date: November 29, 2013
Distinction: Very Honorable
MAR. 2010 MSc in COMPUTER SCIENCE: DATA, KNOWLEDGE AND DISTRIBUTED SYSTEMS
University of Jendouba, Jendouba, Tunisia
Topic: Feature extraction methods in grid computing environments
Internship: Data Mining Group, Blaise Pascal University, Clermont Ferrand, France
Distinction: Very Good - Valedictorian
JUL. 2008 BSc in COMPUTER SCIENCE
University of Carthage, Bizerta, Tunisia
Senior year thesis: Semantic Web service discovery
Distinction: Very Good - Valedictorian

WORK EXPERIENCE

FROM SEP. 2016	Associate professor TELECOM Nancy, LORIA/Inria Nancy Grand Est
DEC. 2015-AUG. 2016	Postdoctoral Researcher Machine Learning for Big Data Group (MLBigData) Department of Computer Science, Aalto University, Helsinki, Finland Topic: Machine learning and Big Data
SEP. 2014-NOV. 2015	Postdoctoral Researcher Database and Information Management Group (dbTrento) University of Trento, Trento, Italy Topic: Distributed analysis of large dynamic graphs Supervisors: Prof. Yannis Velegrakis and Prof. Alberto Montresor
SEP. 2013-AUG. 2014	Research Assistant ISIMA, Blaise Pascal University, Clermont Ferrand, France
JUN. 2012-AUG. 2013	Research Engineer and Stand-in Research Assistant Blaise Pascal University, Clermont Ferrand, France

RESEARCH ACTIVITIES

4.1 Research Area

My research area include (but are not limited to): big data management and analytics, large-scale and distributed learning, distributed analysis of large and dynamic graphs, data partitioning as well as large-scale protein function annotation.

4.2 Publications

Books and Book Chapters

- Lacomme P., **Aridhi S.** and Phan R. "Bases de données NoSQL et Big Data" (in French). Editor: *Ellipses*, ISBN-10: 2340002613.
- Zoghlami M., **Aridhi S.**, Maddouri M. and Mephu Nguifo E. An Overview of in Silico Methods for the Prediction of Ionizing Radiation Resistance in Bacteria. *In: Ionizing Radiation: Advances in Research and Applications, Physics Research and Technology Series*, ISBN: 978-1-53613-539-8, 2018.

Articles in International Journals

- Zoghlami M., **Aridhi S.**, Maddouri M. and Mephu Nguifo E. Multiple instance learning for sequence data with across bag dependencies. *International Journal of Machine Learning and Cybernetics* (In press)
- The CAFA consortium. The CAFA challenge reports improved protein function prediction and new functional annotations for hundreds of genes through experimental screens. *Genome Biology* (In press)
- Le Berre C., Sandborn W. J., **Aridhi S.**, Devignes M.D., Fournier L., Smail-Tabbone M., Danese S., Peyrin-Biroulet L. Application of Artificial Intelligence to Gastroenterology and Hepatology. *Gastroenterology* (In press)
- Karabadji N.E.I., Khelf I., Seridi H., **Aridhi S.**, Remond D., Dhifli W. A Data Sampling and Attribute Selection Strategy for Improving Decision Tree Construction. *Expert Systems With Applications*, Elsevier , 129, pp. 84-96,-2019.
- H. Mezni, **Aridhi S.**, A. Hadjali. The Uncertain Cloud: State of the Art and Research Challenges. *International Journal of Approximate Reasoning*, Elsevier, 103, pp. 139-151, 2018.
- Inoubli W., **Aridhi S.**, Mezni H., Maddouri M., Mephu Nguifo E. An Experimental Survey on Big Data Frameworks. *Future Generation Computer Systems*, Elsevier, 86, pp. 546-564, 2018.
- Karabadji N., Beldjoudi S., Seridi H., **Aridhi S.**, Dhifli W. Improving Memory Based User Collaborative Filtering with Evolutionary Multi-Objective Optimization. *Expert Systems With Applications (ESWA)*, Elsevier, 98, pp.153-165, 2018.
- **Aridhi S.**, A. Montresor, Y. Velegarakis. BLADYD: A Graph Processing Framework for Large Dynamic Graphs. *Big Data Research (BDR)*, Elsevier, 9(C), pp. 9-17, 2017.
- Dhifli W., **Aridhi S.** and Mephu Nguifo E. MR-SimLab: Scalable Subgraph Selection with Label Similarity for Big Data. *Information Systems*, Elsevier, 2017, 69, pp. 155-163, 2017.
- Karabadji N., Seridi H., Bousetouane F., Dhifli W., **Aridhi S.** An Evolutionary Scheme for Decision Tree Construction. *Knowledge-Based Systems (KBS)*, Elsevier, 116, pp. 166-177, 2017.
- **Aridhi S.** and Mephu Nguifo E. Big Graph Mining: Frameworks and Techniques. *Big Data Research (BDR)*, Elsevier, 6, pp. 1-10, 2016.

- **Aridhi S.**, Sghaier H., Zoghlami M., Maddouri M. and Mephu Nguifo E. Prediction of ionizing radiation resistance in bacteria using a multiple instance learning model. *Journal of Computational Biology (JCB)*, 23(1), pp. 10-20, 2016.
- **Aridhi S.**, Lacomme P., Ren L. and Vincent B. A MapReduce-based approach for shortest path problem in large-scale networks. *Engineering Applications of Artificial Intelligence, Elsevier*, 41, pp. 151-165, 2015.
- **Aridhi S.**, d’Orazio L., Maddouri M., Mephu Nguifo E. Density-based data partitioning strategy to approximate large-scale subgraph mining. *Information Systems, Elsevier*, 48, pp. 213-223, 2015.
- **Aridhi S.**, d’Orazio L., Mephu Nguifo E. Un partitionnement basé sur la densité de graphe pour approcher la fouille distribuée de sous-graphes fréquents. *Technique et Science Informatiques*, 33(9-10), pp. 711-737, 2014.

Articles in Peer-Reviewed International Conferences

- Sarker B., Ritchie D.W. and **Aridhi S.** Functional Annotation of Proteins using Domain Embedding based Sequence Classification. *Proceedings of the 11th International Conference on Knowledge Discovery and Information Retrieval (KDIR 2019)*, Vienna, 2019.
- Zoghlami M., **Aridhi S.**, Maddouri M. and Mephu Nguifo E. A Structure Based Multiple Instance Learning Approach for Bacterial Ionizing Radiation Resistance Prediction. In *Proceedings of the 23rd International Conference on Knowledge-Based and Intelligent Information & Engineering Systems (KES 2019)*, Budapest, 2019.
- Sarker B., Ritchie D.W. and **Aridhi S.** Exploiting Complex Protein Domain Networks for Protein Function Annotation. *Proceedings of the 7th International Conference on Complex Networks and Their Applications*, Cambridge, 2018.
- Sarker B., Ritchie D.W. and **Aridhi S.** GrAPFI: Graph Based Inference for Automatic Protein Function Annotation. *17th European Conference on Computational Biology (ECCB)*, Athens, Greece, 2018. (poster)
- Alborzi S.Z., **Aridhi S.**, Ritchie D.W. and Devignes M.D. PPI DomainMiner: predicting domain-domain interactions from protein-protein interactions using tripartite graph modeling and vector similarity. *17th European Conference on Computational Biology (ECCB)*, Athens, Greece, 2018. (poster)
- Inoubli W., **Aridhi S.**, Mezni H., Maddouri M. and Mephu Nguifo E. A Comparative Study on Streaming Frameworks for Big Data . *Proceedings of the Latin America Data Science Workshop co-located with 44th International Conference on Very Large Data Bases (VLDB 2018)*, Rio de Janeiro, Brazil, Aug 27, 2018.
- Inoubli W., **Aridhi S.**, Mezni H., Maddouri M. and Mephu Nguifo E. An Experimental Survey on Big Data Frameworks. *Extremely Large Databases Conference (XLDB)*, 2017. (**Lightning talk, poster**)
- Inoubli W., Almada L., Coelho da Silva T.L., Coutinho G., Peres L., Magalhaes R.P., de Macedo J.F., **Aridhi S.**, Mephu Nguifo E. A Distributed Framework for Large-Scale Time-Dependent Graph Analysis. *Large-Scale Time Dependent Graphs (TD-LSG) in conjunction with ECML-PKDD*, Skopje, Macedonia, 2017.
- **Aridhi S.**, Alborzi S.Z., Tabbone M.S., Devignes M.D. and Ritchie D.W. Neighborhood-Based Label Propagation in Large Protein Graphs. *Function SIG@ISMB-ECCB*, Prague, Czech Republic, 2017.
- Alborzi S.Z., **Aridhi S.**, Devignes M.D., Saidi R., Renaux A., Martin M.J. and Ritchie D.W. Automatic Generation of Functional Annotation Rules Using Inferred GO-Domain Associations. *Function SIG@ISMB-ECCB*, Prague, Czech Republic, 2017.
- **Aridhi S.**, Sghaier H., Zoghlami M., Maddouri M. and Mephu Nguifo E. Prediction of ionizing radiation resistance in bacteria using a multiple instance learning model. In *Proceedings of the 2nd International Workshop on Advances in Bioinformatics and Artificial Intelligence: Bridging the Gap (BAI’16) @ IJCAI’16*, New York, USA. (**Highlight paper**)

- **Aridhi S.**, Brugnara M., Montresor A., Velegrakis Y. Distributed k-core decomposition and maintenance in large dynamic graphs. In *Proceedings of the 10th ACM International Conference on Distributed and Event-based Systems (DEBS '16)*, pp. 161-168, Irvine, USA, 2016.
- **Aridhi S.**, Montresor A., Velegrakis Y. BLADYD: A novel block-centric framework for the analysis of large dynamic graphs. *Proceedings of the High Performance Graph Processing Workshop HPGP@HPDC*, pp. 39-42, Kyoto, Japan, 2016.
- Sakouhi C., **Aridhi S.**, Guerrieri A., Sassi S., Montresor A. DynamicDFEP: A distributed edge partitioning approach for large dynamic graphs. In *Proceedings of the 20th International Database Engineering & Applications Symposium, (IDEAS'16)*, pp. 142-147, Montreal, Canada, 2016.
- Karabadji N., **Aridhi S.**, Seridi H. A Frequent Closed Connected Subgraph Mining Algorithm in Unique Edge Label Graphs. *International Conference on Machine Learning and Data Mining (MLDM)*, pp 43-57, New York, USA, 2016.
- **Aridhi S.**, d'Orazio L., Maddouri M. and Mephu Nguifo E. Cost models for pattern mining in the cloud. In *Proceedings of the 9th Conference on Big Data Science and Engineering*, pp.112-119, Helsinki, Finland, 2015.
- **Aridhi S.**, Vincent B., Lacomme P. and Ren L. Shortest Path Resolution Using Hadoop. In *Proceedings of the 10th International Conference on Modeling, Optimization and Simulation (MOSIM)*, Nancy, France, 2014.
- **Aridhi S.**, Maddouri M., Sghaier H., and Mephu Nguifo E. Computational phenotype prediction of ionizing-radiation-resistant bacteria with a multiple-instance learning model. In *Proceedings of the 12th International Workshop on Data Mining in Bioinformatics (BioKDD)*. ACM, New York, NY, USA, 18-24, 2013.
- Saidi R., **Aridhi S.**, Maddouri M. and Mephu Nguifo E. Feature extraction in protein sequence classification: a new stability measure. In *Proceedings of the ACM Conference on Bioinformatics, Computational Biology and Biomedicine (BCB)*. ACM, New York, NY, USA, 683-689, 2012.
- Saidi R., **Aridhi S.**, Maddouri M. and Mephu Nguifo E. Etude de stabilité de méthodes de sélection de motifs à partir des séquences protéiques. In *Proceedings of Extraction et Gestion des Connaissances (EGC)*. RNTI-E-19, 703-704, 2010.

Articles in Peer-Reviewed International Symposiums

- Arouri C., Mephu Nguifo E., **Aridhi S.**, Roucelle C., Bonnet-Loosli G., Tsopzé N. Towards a constructive multilayer perceptron for regression task using non-parametric clustering. A case study of Photo-Z redshift reconstruction. *European Week of Astronomy and Space Science (EWASS 2017)*, Prague, Czech republic, 2017.
- **Aridhi S.**, Sghaier H., Maddouri M. and Mephu Nguifo E. Domain knowledge-based model for phenotype prediction of ionizing-radiation-resistance in bacteria. *ISCB Student Council Symposium 2014 meeting*, Strasbourg, 2014.
- **Aridhi S.**, d'Orazio L., Maddouri M. and Mephu Nguifo E. A novel MapReduce-based approach for distributed frequent subgraph mining. *Machine Learning and Data Analytics Symposium (ML-DAS)*, Doha, 2014.
- **Aridhi S.**, Sghaier H., Maddouri M. and Mephu Nguifo E. Computational phenotype prediction of ionizing-radiation-resistant bacteria with a multiple-instance learning model. *ISCB Student Council Symposium meeting*, Berlin, 2013. (poster)
- **Aridhi S.**, Sghaier H., Maddouri M. and Mephu Nguifo E. *in silico* phenotype prediction of ionizing-radiation-resistant bacteria by extraction of discriminative motifs. *ISCB Student Council Symposium meeting*, Vienna, 2011. (poster)

Articles in Peer-Reviewed French Conferences

- **Aridhi S.**, Vincent B., Lacomme P. and Ren L. Taking advantages of the MapReduce paradigm in one hadoop cluster for conception of efficient optimization method. *Workshop on Big Spatial Data*, Orléans, France, 2014.

- Saidi R., Dhiffi W., **Aridhi S.**, Agier M., Bronnier G., Debroas D., d’Orazio L., Enault F., Guillaume S. and Mephu Nguifo E. Protein classification in the case of large and many class datasets: A comparison with BLAST and BLAT. *Journées Ouvertes Biologie Informatique Mathématiques (JOBIM)*, Paris, France, 2011. (poster)
- **Aridhi S.**, Saidi R., Maddouri M. and Mephu Nguifo E. Étude paramétrique de la stabilité de méthodes de sélection de motifs à partir des séquences protéiques. *17ème Rencontres de la Société Francophone de Classification (SFC)*, Saint-Denis de la Réunion, France, pp 21-24, 2010.
- Saidi R., **Aridhi S.**, Agier M., Bronner G., Debroas D., d’Orazio L., Enault F., Guillaume S. and Mephu Nguifo E. Functional prediction in the scope of large-scale multi-class learning. *Journées Ouvertes en Biologie, Informatique et Mathématiques (JOBIM)*, Montpellier, France, 2010. (poster)

Theses

- **Aridhi S.** Distributed frequent subgraph mining in the cloud. *Ph.D. thesis*, Blaise Pascal University, France, November 2013.
- **Aridhi S.** Feature extraction methods in grid computing environments. *Master’s thesis*, University of Jendouba, Tunisia, March 2010.

4.3 Projects

- **Project title:** Analyzing big data with time-dependent graphs and machine learning: application to urban traffic analysis and protein function annotation
- **Coordinator:** Sabeur Aridhi
- **Type:** France-Brazil Cooperation Project, CNRS/INRIA-FAPs
- **Period:** Dec. 2017-Dec. 2020
- **UR** <http://tempographs.loria.fr/>
- **Project title:** Large Evolving Graphs (LEG)
- **Coordinator:** Engelbert Mephu Nguifo
- **Type:** CNRS PEPS Blanc INS2I
- **Period:** Dec. 2016-Dec. 2018
- **URL:** <http://leg.isima.fr/>
- **Project title:** Large-Scale Time Dependent Graphs (LSTG)
- **Coordinator:** Engelbert Mephu Nguifo
- **Type:** France-Brazil Cooperation Project, PRC CNRS-FAPs
- **Period:** Jan. 2016-Dec. 2018
- **URL:** <http://projets.isima.fr/lstg/>

4.4 Students

Master students

- Chayma Sakouhi, Apr. 2015-Oct. 2015, University of Trento, co-advising with Alberto Montresor and Salma Sassi: "Partitioning of large and dynamic graphs"
- Takwa Ben Smida, Apr. 2014-Oct. 2014, Blaise Pascal University, co-advising with Engelbert Mephu Nguifo and Sami Zghal: "Distributed frequent subgraph mining from large single graphs"

- Cyrine Arouri, Apr. 2014-Oct. 2014, Blaise Pascal University, co-advising with Engelbert Mephu Nguifo, Roucelle Cecile and Bonnet-Loosli Gaelle: "Photo-Z redshift reconstruction using non-parametric clustering"

PhD students

- Bishnu Sarker, since November 2017, co-advising (50 %) with Dave Ritchie: "Developing distributed graph-based approaches for large-scale protein function annotation and knowledge discovery"
- Wissem Inoubli, since September 2016, co-advising (30 %) with Engelbert Mephu Nguifo and Mondher Maddouri: "Mining and Analysis of Dynamic graphs"
- Manel Zoghliami, September 2014 - December 2018, co-advising (30 %) with Engelbert Mephu Nguifo and Mondher Maddouri: "Multiple instance learning approaches for sequence data with across bag dependencies"

TEACHING ACTIVITIES

September 2016 - now, TELECOM Nancy, University of Lorraine

- Databases (Lecture + Lab works)
- Big Data Management (Lecture + Lab works)
- Big Data Hackathon (Lecture + Lab works)

May 2016: "IEEE MOOC on Big Data for Smart Cities"

- **Institution:** IEEEEx
- **Instructors:** Dr. Sabeur Aridhi and Pr. Yannis Velegarakis
- **Length:** 4 weeks

2015-2016, Aalto University, Finland

- Convex Optimization for Big Data (Lecture, Master 1)

2014-2015, University of Trento, Italy

- Distributed Systems (Lecture, Master 1)
- Big Data (Lecture, Master 1)

2012-2013 and 2013-2014, Blaise Pascal University, France

- Databases (Lecture, Master 1)
- Advanced object programming (Lab works, Master 1)
- C programming language, (Lab works, Bachelor students)
- Data mining (Lab works, Master 2)
- Service Oriented Architecture (Lab works, Master 2)
- Functional programming (Lab works, Bachelor students)
- Data Structures and Algorithms (Lab works, Bachelor students)

LANGUAGES

English: Fluent | **French:** Fluent | **Italian:** Basic knowledge | **Arabic:** Mother tongue

INTERESTS AND ACTIVITIES

Technology, Open-Source, Programming
Football, Travelling