

# Ansaf Salleb-Aouissi, Ph.D.

Computer Science Department  
Columbia University, New York

Phone: 212-939-7117

Email: [as2933@columbia.edu](mailto:as2933@columbia.edu) or [ansaf@cs.columbia.edu](mailto:ansaf@cs.columbia.edu)

Homepage: <http://www.cs.columbia.edu/~ansaf/>

Google Scholar: <https://scholar.google.com/citations?user=77kOUvYAAAAJ&hl=en>

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## RESEARCH INTERESTS

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Education, artificial intelligence, machine learning, real-world applications, classification, frequent patterns, and Medical informatics.

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## EDUCATION

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INRIA Rennes, France	Machine Learning	Postdoc fellow 2005
University of Orléans, France	Machine Learning	Ph.D. 2003 (joint scholarship from the French government and industry)
University of Orléans, France	Computer Science	M.S. 1999
USTHB Algiers, Algeria	Computer Science	Engineer 1996

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## EMPLOYMENT

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- **2015-present** Department of Computer Science, Columbia University. Lecturer in Discipline
- **2015-2016** Data Science Institute, Columbia University. Lecturer in Discipline
- **2006-2015** Center for Computational Learning Systems(CCLS) Columbia University. Associate Research Scientist
- **2014-2015** Department of Computer Science at Columbia University. Adjunct Assistant Professor
- **2012-Present** Health Analytics Center. Columbia University Data Science Institute. Affiliated faculty member
- **2004-2005** French National Institute of Computer Science and Control (INRIA) Rennes, France. INRIA Postdoctoral Research Fellow
- **2002-2004** University of Orléans, Computer Science Department and Laboratoire d'Informatique Fondamentale d'Orléans (LIFO). Adjunct Assistant Professor and Researcher
- **1999-2002** University of Orléans, Computer Science Department and Laboratoire d'Informatique Fondamentale d'Orléans (LIFO). Teaching Assistant

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## EDUCATION ACTIVITIES

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- **Teaching:**

1. Columbia University AI Micromasters on EdX. The micormasters includes a set of four courses: Artificial Intelligence, Machine Learning, Robotics and Animation & CGI Motion. The Micromasters attracted over **290,000 learners** in total. The AI course that I taught, attracted alone **250,000 learners** from **200** countries and regions worldwide. The Micromasters is recognized by industry leaders GE, IBM, Volvo, Ford, Adobe, PwC and included in their employees e-learning platforms.
2. Columbia Engineering Summer High School Academic Program for Engineers (SHAPE): offers two 3-week sessions. I teach Computer Science and Programming in Python. Summer 2017 and 2018.
3. Artificial Intelligence COMS 4701: Fall 2014, Summer 2016, 2017, 2018, Spring 2017, 2018, 2019.
4. Discrete Mathematics COMS 3203: every semester since Fall 2015.
5. Introduction to Computing for engineers and applied sciences ENGIE1006: Fall 2016.
6. EdX Data Science and Analytics XSeries DS102X: Spring 2016.
7. Data Science Capstone & Ethics ENGIE4800: Spring 2016.
8. Introduction to Data Science COMS 4242: Spring 2015.
9. Machine Learning for Data Science COMS 4721 – Spring 2014.
10. Advanced Machine Learning COMS 6772 (Two lectures - 4h - Fall 2008).
11. University of Orléans (France): courses on data mining, operating systems, discrete mathematics, databases, computer programming.

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## PATENTS, TALKS AND & HONORS

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- **March 15, 2019**

Invited speaker at The Emerging Technologies Consortium (ETC), Columbia University. Title “Introduction to AI.”

- **November 20, 2018**

Invited speaker at The Promise of Artificial Intelligence: Present and Future Symposium Nov 19 - 21, 2018, Kuwait University, Khaldiya. Title “Taking the Future of Education to the Next Level.”

- **December 14, 2017**

Invited speaker at the United Nations on Artificial Intelligence and Inclusion. Title: “AI and Cognitive Computing - a Practical Introduction.”

- **November 8, 2017**

Keynote speaker at the Global Symposium on Artificial Intelligence and Inclusion - Rio De Janeiro. Title: “AI and the Building of a More Inclusive Society’.” <https://aiandinclusionsymposium.com/> and <https://aiandinclusion.org/>.

- **January 2018**

The Eighth Symposium on Educational Advances in Artificial Intelligence 2018 (EAAI-18) has selected me as one of the EAAI 2018 New and Future AI Educators where researchers and educators meet to discuss pedagogical issues related to teaching and using AI in education. The symposium, which is co-located with the 32st Association for the Advancement of Artificial Intelligence (AAAI-18) Conference, was held in New Orleans February 3 and 4.

- **April 11, 2017**  
Interview with Ronaldo Lemos, director of the Institute for Technology & Society of Rio de Janeiro (ITS Rio) and professor of Law & Innovation at Rio's State University. The show is "Expresso Futuro", a prime-time TV show from the Brazilian network Canal Futura.  
<http://www.futuraplay.org/video/inteligencia-artificial/368898/>
- **April 26, 2017**  
Invited speaker at SIPA's Artificial Intelligence (AI) and Data Collection: Policy Implications for Development event.
- **February 12, 2017**  
Interview at *la tercera*: "The dawn of artificial intelligence" <http://www.latercera.com/noticia/amanecer-la-inteligencia-artificial/>
- **Fall 2015** Columbia medicine article: S. Conova, Why Mothers Deliver Early And How To Stop It. Columbia Medicine Magazine Volume 35 No. 2, 2016.  
<http://www.columbiamedicinemagazine.org/issue/fall-2015>
- **Spring 2015** Columbia Office of the Executive Vice President for Research Newsletter Spring 2015. Page 3
- **June 10, 2014**  
US patent 8,751,421 "Machine Learning for the power grid". Role: co-inventor.

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## RECENT PROJECTS/GRANTS

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- **Spring 2019** Alliance Joint Project Grant: Collaboration with Nakul Verma and Researchers at Ecole Polytechnique Paris.
- **Spring 2017** Provost Hybrid Learning Course Redesign and Delivery Award. Title: "Adding a Chatbot to answer FAQs in Massive Open Online Courses."
- **Fall 2017** With Dr. Lynn Petukhova (Departments of Dermatology and Epidemiology), we have received a \$30K grant to study immune disease mechanisms. The grant is through The Irving Institute for Clinical and Translational Research and the Data Science Institute.
- **September 2014 - August 2017**  
"EAGER: Collaborative Research: Advanced Machine Learning for Prediction of Preterm Birth" Funded by the National Science Foundation (Role: Principal Investigator). [http://www.nsf.gov/awardsearch/showAward?AWD\\_ID=1454855](http://www.nsf.gov/awardsearch/showAward?AWD_ID=1454855)
- **December 2015 - January 2017**  
"Deep Content Classification" Funded by SAP SE – Germany (Role: Principal Investigator).
- **April 2015 - June 2016**  
"Optimal Path to Knowledge" Funded by Pearson Education, Center for Educator Learning & Effectiveness (Role: Principal Investigator).
- **September 2014 - June 2015**  
"Media Portrayal of Teachers" Funded by Pearson Education, Center for Educator Learning & Effectiveness (Role: Principal Investigator).
- **June - September 2014**  
"Reinforcement learning to develop an adaptive stochastic controller for optimizing energy consumption in buildings." PI: Roger Anderson. Role: Research Scientist.
- **July 2013 - September 2013**  
National Science Foundation. RI: Medium: Collaborative Research: From Text to Pictures (Role: Research Scientist; PIs: Owen Rambow & Julia Hirschberg).

- **January 2013 - December 2013**

Naval Postgraduate School grant “Leveraging Structural Characteristics of Interdependent Networks to Model Non-linear Cascading Risks” in response to NPS-BAA-12-002. (Role: Consultant PI: Anita Raja UNC Charlotte).

- **2011- 2013**

Principal Investigator of “Understanding Baby Colic via Machine Learning” project involving CCLS and Columbia University Medical School. This project funded starting April 2011 by a Research Initiatives in Science and Engineering (RISE) funding from the Columbia University Executive Vice President for Research, (Role: Principal Investigator).

- **2009-2010**

Columbia University, Alliance Grant for Faculty Joint Project travel grant. “Supervised Ranking: A Distance-based Approach” PI Ansaf Salieb-Aouissi (Columbia University) and Frank Nielsen (Ecole Polytechnique, Paris). <http://www.columbia.edu/cu/alliance/research.html> (Role: Principal Investigator).

- **2010- 2012**

Member of the Smart Grid project, funded by the US Department of Energy (Role: Research Scientist; PI: Roger Anderson).

- **2006-2010**

Member of the *CALM project* involving CONSOLIDATED EDISON OF NEW YORK and CCLS (Columbia University). This collaboration aims at developing and applying advanced Artificial Intelligence and Machine Learning methods toward a modern grid technology to improve public safety and system reliability. (Role: Research Scientist; PI: Roger Anderson)

- **2008-2010**

Member of the *Epilepsy project* involving CCLS and the Medical school (Columbia University). This collaboration aims at developing an “Early Warning” Device to Allow Epilepsy Patients to Live a More Normal Life. This project was funded by Research Initiatives in Science and Engineering (RISE) at Columbia University. (Role: Research Scientist; PI: David Waltz)

- **2010**

Member of the *Epilepsy project* involving CCLS and Columbia University Medical School. This project was funded by the Epilepsy Foundation (Role: Research Scientist; PI: Catherine Schevon).

- **2004-2005**

Member of the *SACADEAU project* involving IRISA-INRIA and INRA (French Institute for Agronomy Research) in France. This project aims at “Building a Knowledge Acquisition System for Decision-Aid to Improve Stream-water Quality”. (Role: Postdoc)

- **2003-2004**

Member of the project “French-Russian Research Hub for the Search and Discovery of Super-Large Metallic Deposits”. It is a collaboration between the French Geological Survey BRGM and the Russian Academy of Sciences. This collaboration was supported by a NATO Science Program. (Role: PhD student)

- **2000-2004**

During my Masters and my Ph.D. thesis on “Data Mining in Geographic Information Systems (GIS): Application to the Andes Cordillera Mineral Deposits” I was a member of a collaboration between the University of Orleans in France and the *French Geological Survey (BRGM) Service of Mineral Resources*. (Role: PhD student)

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## PROFESSIONAL ACTIVITIES

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### PC Membership and Journal Reviewing:

- Reviewer/PC Member IJCNN 2012-2018, ICML 2019, NIPS 2019, UAI 2019., ECML-PKDD 2008-2019.

- 2016-2017: Associate Editor of the Springer Journal Signal, Image and Video Processing.
- Local arrangement committee member for the International Joint Conference for Artificial Intelligence IJCAI 2016 New York City. Website chair and program committee member. <http://ijcai-16.org/>
- Reviewer Paediatric and Perinatal Epidemiology journal.
- PC Member the International Joint Conference for Artificial Intelligence **IJCAI 2016** conference.
- Reviewer for the Transactions on Knowledge and Data Engineering journal **TKDE**.
- PC Member the fourteen SIAM International Conference on Data Mining, **SDM'14**.
- NSF Division of Information and Intelligent Systems (**IIS**), 2009 and 2013.
- PC member of the Knowledge Extraction and Management (Extraction et Gestion des Connaissances), **EGC 2010-2015**.
- Reviewer for Data Mining and Knowledge Discovery Journal **DMKD**.
- PC member of the European Conference on “Machine Learning” and “Principles and Practice of Knowledge Discovery in Databases” **ECML PKDD 2011**.
- PC member of the International Conference on Knowledge Discovery and Information Retrieval **KDIR 2011**.
- PC member of the International Conference on Data Engineering, **ICDE 2011**.
- PC member of the 1st Maghrebian Conference on the Extraction and management of Knowledge **EGC-Maghreb 2010**.
- “Advances in Knowledge Discovery and Management”, a refereed book of chapters, published by Springer, **AKDM 2009-2012**.
- The 15th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining, 2009,
- Quality Measures for Data Mining Book, Springer-Verlag **QMDM2006**,
- Data and Knowledge Quality Workshops **DKQ2005, 2006**,
- Qualité des Données et des Connaissances workshops co-located with EGC **QDC2007-2010**.

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## MAJOR PUBLICATIONS

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### • Journals and Book Chapters

- [J7] Faiza Khan Khattak and **Ansaf Salleb-Aouissi**  
Toward Robust Crowd Labeling using Expert Evaluation and Pairwise Comparison  
Under submission.
- [J6] **Ansaf Salleb-Aouissi**, Christel Vrain, Cyril Nortet, Xiangrong Kong, Daniel Cassard  
QuantMiner for Mining Quantitative Association Rules  
Journal of Machine Learning Research Open source software. 14(Oct):3153-3157, 2013.  
<https://github.com/QuantMiner/QuantMiner>
- [J5] R. Trepos, **Ansaf Salleb-Aouissi**, M-O. Cordier, V. Masson and c. Gascuel  
Building actions from classification rules  
Knowledge and Information Systems: Volume 34, Issue 2 (2013), Page 267-298.
- [J4] Rebecca J. Passonneau, Vikas Bhardwaj, **Ansaf Salleb-Aouissi** and Nancy Ide  
Multiplicity and Word Sense: Evaluating and Learning from Multiply Labeled Word Sense Annotations. Language Resources and Evaluation 46(2): 219-252 (2012).

- [J3] Cynthia Rudin, David Waltz, Roger Anderson, Albert Boulanger, **Ansaf Salleb-Aouissi**, Maggie Chow, Haimonti Dutta, Philip Gross, Bert Huang, Steve Jerome  
Machine Learning for the New York City Power Grid," in the IEEE Transactions on Pattern Analysis and Machine Intelligence, vol. 34, no. 2, pp. 328-345, Feb. 2012
- [J2] **Ansaf Salleb-Aouissi**, C. Vrain  
A Contribution to the Use of Decision Diagrams for Loading and Mining Transaction Databases  
**Fundamenta Informaticae Journal 2007**. Volume 78, Number 4, pp. 575-594. IOS Press.
- [J1] B. Duval, **Ansaf Salleb-Aouissi**, C. Vrain  
On the Discovery of Exception Rules: A Survey. Reviewed **Book chapter** in "Quality Measures in Data Mining" book. In F. Guillet and Howard J. Hamilton editors Springer's Lecture Notes in Artificial Intelligence, Volume 43/2007 pp. 77-98. Springer January 2007.

• **Conferences**

- [C30] Ilia Vovsha, **Ansaf Salleb-Aouissi**, Anita Raja, Axinia Radeva, Ashwath Rajan, Alex Rybchuk, Thomas Koch, Yiwen Huang, Hatim Diab, Ashish Tomar, and Ronald Wapner  
Using Kernel Methods and Model Selection for Prediction of Preterm Birth  
Machine Learning for Healthcare 2016 JMLR conference track proceedings. August 2016.
- [C29] Faiza Khan Khattak, **Ansaf Salleb-Aouissi** and Anita Raja  
Accurate Crowd-labeling using Item Response Theory.  
In Collective Intelligence Conference 2016
- [C28] Antonio Moretti, Kathy McKnight and **Ansaf Salleb-Aouissi**  
Application of Sentiment and Topic Analysis to Teacher Evaluation Policy in the U.S.. Educational Data Mining (EDM) conference 2015.
- [C27] **Ansaf Salleb-Aouissi**, Christel Vrain and Daniel Cassard  
Learning Characteristic Rules in Geographic Information Systems. The 9th International Web Rule Symposium (RuleML) 2015.
- [C26] Ilia Vovsha , Ashwath Rajan , **Ansaf Salleb-Aouissi**, Anita Raja , Axinia Radeva, Hatim Diab, Ashish Tomar and Ronald Wapner Predicting preterm birth is not elusive: machine learning paves the way to individual wellness. *AAAI Spring Symposium – Big Data Becomes Personal: Knowledge into Meaning - For Better Health, Wellness and Well-Being.*, 2014. Paper: <http://www1.ccls.columbia.edu/~ansaf/CING/AAAI2014.pdf>
- [C25] Faiza Khan Khattak and **Ansaf Salleb-Aouissi**  
Robust Crowd Labeling using Little Expertise  
Proceedings of the Sixteenth International Conference on Discovery Science DS 2013, LNAI 8140, pp. 94-109, 2013.
- [C24] Anita Raja, Mohammad Hasan, Shalini Rajanna, **Ansaf Salleb-Aouissi**  
A Scalable Approach to Modeling Risk in the MDAP Network Proceedings of Naval Postgraduate Schools 10th Annual Acquisition Research Symposium, pp 293-318, Monterey, CA.
- [C23] Faiza Khan Khattak and **Ansaf Salleb-Aouissi**. Improving Crowd Labeling through Expert Evaluation. In the 2012 AAAI Spring Symposium Series SS-12-06 Wisdom of the Crowd.
- [C22] Cynthia Rudin, Benjamin Letham, **Ansaf Salleb-Aouissi**, Eugene Kogan, David Madigan  
Sequential Event Prediction with Association Rules. Journal of Machine Learning Research - Proceedings Track 19: 615-634 (2011)
- [C21] Haimonti Dutta, David L. Waltz, Karthik M. Ramasamy, Philip Gross, **Ansaf Salleb-Aouissi**, Hatim Diab, Manoj Pooleery, Catherine A. Schevon, Ronald Emerson  
Patient-Specific Seizure Detection from Intra-cranial EEG Using High Dimensional Clustering. In ICMLA 2010: 782-787