Sergio Peignier

Curriculum Vitae

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Education

2014–2017 **Ph.D.**, *INRIA - LIRIS*, Lyon, France.
Computer Science.

2013–2014 **M.Sci.**, *ENS*, Lyon, France.
Fundamental Computer Science, specialisation in Complex Systems.

2009–2014 **Engineering degree**, *INSA*, Lyon, France.
Bioinformatics and Modelling, **Honorable mention**.

Additional Classes and Schools

2015 **Advanced Lecture Course on Computational Systems Biology**, *COMPSYSBIO spring school*, Aussois, France.

Work Experience

2017 **Data Scientist**, *Atos Worldline*, Lille, France, High Performance and Volume R&D Team.
- Deep Learning Methods (LTMS and Autoencoders) for anomaly detection in time-series data.
- Application to Toro Rosso F1 cars telemetry data for early detection of technical problems.

Research Experience

2018 **Postdoctoral Research**, *CMLA - ENS*, Cachan, France, MLMDA team, Mathilde Mougeot and Nicolas Vayatis.
- Project: Industrial data analytics & Machine learning (industrial partners: Atos and CEA).
- Research on Transfer-Learning methods and their industrial application.
- Modelling temporal dynamics of diffusion networks.

2014–2017 **Ph.D. Research**, *INRIA - LIRIS*, Lyon, France, BEAGLE team, supervised by Christophe Rigotti and Guillaume Beslon.
- European project EvoEvo that aims to study evolution and develop bio-inspired algorithms.
- Evolutionary Subspace Clustering algorithm for dynamic data streams (SubMorphoStream).
- K-medians Subspace Clustering algorithm for static datasets (KymeroClust).
- Bio-inspired evolutionary Subspace Clustering algorithm for static datasets (Chameleoclust).
- Wi-fi signals analyser based on Evolutionary Algorithms (EvoWave).
- Evolutionary musical companion for dancers (EvoMove).

2016 **Visiting Researcher**, *Faculty of Sciences Universidad Mayor de San Andrés (UMSA)*, La Paz, Bolivia, Collaboration with Heriberto Castañeta Maroni.
- Analysis of high dimensional physical features of chemical compounds using Subspace Clustering.

2014 **M.Sci. Research**, *INRIA - LIRIS*, Lyon, France, BEAGLE team, supervised by Christophe Rigotti and Guillaume Beslon.
- Development of *in silico* models to study the evolution of bacteria genome structure.
- Design of an evolvable Clustering algorithm that adapts to data by changing its genome structure.

2013 **Undergraduate Research**, *LBMC, ENS*, Lyon, France, Genetics of Intra-Species Variations team, Supervised by Gael Yvert.
- Design of computer driven statistical analysis of genetic regions involved in selective advantage of yeast populations under breeding.
- Detection of genetic regions involved in bioethanol manufacturing for Lesaffre company.

2012-2013 **Undergraduate Research**, *Faculty of Sciences Universidad Mayor de San Andrés (UMSA)*, La Paz, Bolivia, Supervised by Heriberto Castañeta.
- Genetic Algorithms and Neural Networks methods for Q-SAR of chemical compounds adsorption.
- Predictive Analysis of RNA secondary structure by Neural Network algorithms.

Awards

2015 **Best Paper Award**, *Evolutionary Machine Learning*, International ACM conference on Genetic and Evolutionary Computation Conference, Madrid - GECCO-2015.

Publications

Peer-Review Journals

[1] Abernot, J., Beslon, G., Peignier, S. and Rigotti, C. (2017). Evolving Instrument Based on Symbiont-Host Metaphor. Journal of Creative Music Systems, 2(1), p.10.

[2] Peignier, S., and Castañeta, H. (2015). Analysis of subspace clustering of molecules using Chameleoclust, an evolutionary algorithm. Revista Boliviana de Química, 32(5), p.10.

[3] Peignier, S., and Castañeta, H. (2012). Búsqueda de Estructuras Secundarias Óptimas y Subóptimas de una Cadena de ARN Utilizando Inteligencia Artificial. Revista Boliviana de Química [Prediction of Optimal and Suboptimal Secondary Structure of RNA Molecules Using Artificial Intelligence], 29(2), p.10.

Books

[4] Peignier S., Zapata P. (2017). Análisis del Discurso Socialista Latinoamericano basado en Inteligencia Artificial [Analysis of Latin-American Socialist Speech Based on Artificial Intelligence]. Instituto Internacional de Integración Convenio Andrés Bello. p.245.

Conferences

[5] Peignier, S., Zapata, P., (2018) Analysis of Fidel Castro Speeches using Machine Learning, Digital Humanities Benelux Conference. (submitted) p.5.

[6] Peignier, S., Rigotti, C., Rossi, A., and Beslon, G. (2018) Estudio Comparativo del Discurso Socialista Latinoamericano Mediante Aprendizaje Automático [Comparative Study of Latin-American Socialist Speech Based on Machine Learning]. ADHO Digital Humanitites Conference. (submitted) p.5.

[7] Peignier, S., Rigotti, C., Rossi, A., and Beslon, G. (2018) Weight-based search to find clusters around medians in subspaces. ACM Symposium on Applied Computing Data Mining Track. (submitted) p.10.

[8] Peignier, S., Rigotti, C., and Beslon, G. (2017) EvoMove: Evolutionary-based living musical companion. European Conference on Artificial Life. p.8.

[9] Abernot, J., Beslon, G., Peignier, S. and Rigotti, C. (2016) A commensal architecture for evolving living instruments. In Proceedings of the Conference on Computer Simulation of Musical Creativity. p.8.

[10] Peignier, S., Rigotti, C., and Beslon, G. (2015) Subspace clustering using evolvable genome structure. In Proceedings of the ACM Genetic and Evolutionary Computation Conference. p.8. Best Paper in Evolutionary Machine Learning.

[11] Peignier, S., Rigotti, C., and Beslon, G. (2015) Subspace Clustering for all Seasons. In EvoEvo Workshop (satellite workshop of ECAL). p.3.

Technical Reports

[12] Peignier, S., (2017) Study of Telemetry Measures for Toro Rosso Formula One Racing Team. Atos Worldline Confidential Technical Report. p.61.

[13] Abernot, J., Beslon, G., Peignier, S. and Rigotti, C. (2016) Deliverable 5.2 EvoEvo project. FP7 funding, http://evoevo.eu/. p.28.

[14] Abernot, J., Beslon, G., Peignier, S. and Rigotti, C. (2016) Deliverable 5.1 EvoEvo project. FP7 funding, http://evoevo.eu/. p.42.

Posters

2016 LIRIS, Journée des Thèses du LIRIS (2016): Subspace Clustering Based On Bio-Inspired Evolutionary Algorithm.

Oral Presentations

Invited Talks

2017 Invited Speaker, Electrical Engineering Department UMSA, La Paz Bolivia: Minería de datos dinámicos y estáticos mediante algoritmos evolutivos de subspace clustering [Mining static and dynamic data using evolutionary subspace clustering algorithms].

2017 Invited Speaker, Linguistics Department UMSA, La Paz Bolivia: Breve introducción al procesamiento de lenguajes naturales y a la minería de datos basada en inteligencia artificial.

2016 Invited Speaker, BeyondLab Math-Info event (Industrial transfer event): EvoEvo (Evolution of Evolution).

Contributed Talks

2017 LIRIS, DM2L Team: Subspace Clustering Using Bio-Inspired Algorithms.

2016 LIRIS, DM2L Team: Subspace Clustering Using Evolvable Genome Structure.

Other Talks

2017 Presentation to IT manager board from Toro Rosso F1 (customer).

2017 Presentation to commercial manager board from Atos Italy (partner).

Teaching Experience

2014–2016 **Modelling of Biological Systems using MATLAB**, INSA, Lyon.
A course for third year students of the Dept. of Bioinformatics and Modelling (6 hours).

2014–2016 **Data Bases and SQL**, INSA, Lyon.
A course for third year students of the Dept. of Bioinformatics and Modelling (28 hours).

2014–2016 **Algorithmic and Programming on Python**, INSA, Lyon.
A course for third year students of the Dept. of Bioinformatics and Modelling (30 hours).

2012–2014 **Academic Tutoring**, *Passerelle Program*, INSA, Lyon.
Academic tutoring in mathematics and programming for first and second year students.

Technical skills

OS	Linux, Microsoft Windows, OSX
Programming	python, C, C++, R, Matlab, Java, LaTeX, html, CSS
Databases	MySQL, SQLite,

Language Skills

French (native), **Spanish** (native), **English** (Fluent, TOEIC 2013)

Portuguese (Very good command, B1 2014), **Italian** (Good command, B1 2013)

Extramural Activities

2014 Development of the "Informatique Sensorielle" project for artistic exploration using Neural Networks. Participation in the 4th RADART meeting.

References

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