

CURRICULUM VITAE

Guillaume Metzler

Born the 7 of January 1992 in HAGUENAU, FRANCE
30 years old
Nationality : French

PhD in Computer Science
Associate Professor in Computer Science



Current Affiliation

Teaching : Institute of Communication (ICOM) - University Lumière Lyon 2, University of Lyon.
Research : ERIC Laboratory, UR 3083 (K73) - 5 Avenue Pierre Mendès France, 69500 Bron.

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Personal Website : <https://guillaumemetzler.github.io>

Research Topics

- Imbalanced (Binary) Classification
- Cost-Sensitive Learning
- Metric Learning and Representation Learning
- Boosting
- SemiDefinite Programming
- Domain Adaptation

Professional Experiences

- | | |
|-------------------|--|
| 09/2020 - ... | Associate Professor
ERIC Laboratory UR 3083, University Lumière Lyon 2, University of Lyon |
| 04/2020 - 08/2020 | Post-Doctoral Researcher
Hubert Curien Laboratory UMR CNRS 5516, University Jean-Monnet,
University of Lyon |
| 09/2019 - 03/2020 | Post-Doctoral Researcher
Hubert Curien Laboratory UMR CNRS 5516, University Jean-Monnet,
University of Lyon |

Education

- 2019 **PhD in Computer Science**
- PhD from University Jean-Monnet, University of Lyon, defended the 25th of September 2019.
PhD Director : Marc Sebban (Professor)
Co-supervisors : Elisa Fromont (Professor) et Amaury Habrard (Professor)
PhD Topic : ***Learning from Imbalanced Data : an Application to Bank Fraud Detection***
- Members of the Jury :
Yves Grandvalet (Professor) - President
Marianne Clausel (Professor) - Reviewer
Marc Tommasi (Professor) - Reviewer
Xavier Badiche (CEO BLITZ Business Services) - Invited Member
Brahim Belkasmı (R&D Engineer BLITZ Business Services) - Invited Member
- Industrial PhD funded by the French ANRT and in Partnership with BLITZ Business Services Company.
- 2015 **Magistère of Fundamental et Applied Mathematics**
UFR of Mathematics and Computer Science, University of Strasbourg
- 2015 **Master of applied Mathematics : Applied Mathematics to Biology and Medecine**
University Claude Bernard, University of Lyon
- 2013 **Bachelor of Fundamental et Applied Mathematics**
UFR of Mathematics and Computer Science, University of Strasbourg
- 2012 **Classe Préparatoire aux Grandes Ecoles (CPGE) - Mathematics and Physic (MPSI then MP)**
Kléber High School, Strasbourg
- 2010 **Baccalauréat Scientifique**
Alphonse Heinrich High School, Haguenau

Pedagogical Activities

Teaching

The table below lists the courses I have taught since my PhD. It is not representative of the number of hours of teaching done but it gives an overview of the teaching done.

The courses presented are those carried out at the Jean Monnet University (UJM), at the Lyon 2 University (ICOM) and at the Lyon Management School (EM Lyon).

When the name of the course is given in English, it means that the course was provided in english to international students. Otherwise, the course was given in French.

Bachelor - Formation	Type	Instruction's hours	Course	Years
Niveau Licence 1				
Mathématiques, Informatique, Sciences Physiques pour l'Ingénieur et Chimie (MISPIC)	TD	8h	Outils Numériques - \LaTeX	2019-2020
Mathématiques, Informatique, Sciences Physiques pour l'Ingénieur et Chimie (MISPIC)	TD/TP	32h	Outils Informatiques - Python	2019-2020
Mathématiques, Informatique, Sciences Physiques pour l'Ingénieur et Chimie (MISPIC)	TP	16h	Bases de Données Relationnelles	2019-2020
Informatique	TP	14h	Environnement Informatique et Internet	2022-...
Informatique	CM/TP	10h/10h	Analyse I	2022-...
Niveau Licence 2				
Mathématiques et Informatiques Appliqués aux Sciences Humaines et Sociales (MIASHS)	CM/TP	21h/19h	Algèbre Linéaire & Analyses de Données	2021-...
Informatique	CM/TP	10h/10h	Algèbre	2022-...
Niveau Licence 3				
Informatique Décisionnelle et Statistiques (IDS)	TD/TP	12h/7h	Statistiques Inférentielles I	2020-2022
Informatique Décisionnelle et Statistiques (IDS)	TD	19h	Statistiques Inférentielles II	2021-2022
Informatique Décisionnelle et Statistiques (IDS)	CM/TP/TP	21h/9h/9h	Systèmes d'Informations et Bases de Données Relationnelles	2020-2022

Mathématiques et Informatiques Appliqués aux Sciences Humaines et Sociales (MIASHS)	TD	10.5h	Modèles Linéaires	2020-2022
Mathématiques et Informatiques Appliqués aux Sciences Humaines et Sociales (MIASHS)	TD	10.5h	Sondages	2020-2022
Informatique	TP	14h	Compilation et Analyse Lexicale	2022-...

Master - Formation	Nature	Instruction's hours	Course	Years
Niveau Master 1				
Machine Learning and Data Mining (MLDM, UJM)	CM/TD/TP	3h/3h/4h	Convex Optimization and Operational Research (English)	2016-2019
Colour in Informatics and Media Technology (COSI, UJM)	CM	5h	Introduction to Machine Learning (English)	2016-2017
Informatique	TP	14h	Statistiques Inférentielles	2020-2022
Informatique	TP	14h	Complexité	2022-...
Mathématiques et Informatiques Appliqués aux Sciences Humaines et Sociales (MIASHS)	CM/TD	10h/6h	Introduction to Supervised Machine Learning	2022-...
Niveau Master 2				
Statistique et Informatique pour la Science des Données (SISE)	CM/TD	7h/14h	Fouilles de Données Massives	2020-2022
Statistique et Informatique pour la Science des Données (SISE)	TD	21h	Fouilles de Données Massives	2022-...
Business Intelligence et Big Data (BIBD)	CM/TD/TP	7h/14h	Fouilles de Données Massives	2020-2022
Business Intelligence & Analytics (BI&A)	CM/TD	6h/15h	Machine Learning	2020-2022
Machine Learning and Intelligence Artificielle (MALIA)	CM/TD	4.5h/6h	Recent Advances in Machine Learning	2022-...

Internships Supervision (Excluding Master Students Research Internship)

Julien Bastian

University Lumière Lyon 2, 3rd year of Bachelor MIAHS - IDS (2021-2022)

Topic : *"Learning Representations for Wavelets, an Application to ECG Classification"*

Duration : 8 weeks

Sophie Lepennetier

University Lumière Lyon 2, 2nd year of Bachelor MIAHS - Cognitive Sciences (2021-2022)

Topic : *"Study of data studying attraction as a function of odor perception"*

Duration : 6 weeks

Matteo Vernay

University Lumière Lyon 2, 2nd year of Bachelor MIAHS - Psychology (2021-2022)

Topic : *"Introduction to Machine Learning with an Application to Ranking Problems"*

Duration : 6 weeks

Léa Abriel

University Lumière Lyon 2, 2nd year of Bachelor MIAHS - Economy-Management (2020-2021)

Topic : *"Machine Learning for Fraud Detection with Ranking Methods"*

Duration : 6 weeks

Mathilde Rodrigues Da Rocha

University Lumière Lyon 2, 2nd year of Bachelor MIAHS - Cognitive Sciences (2020-2021)

Topic : *"Study of Graph Neural Networks, applied to Cognitive Sciences"*

Duration : 5 weeks

Co-Supervisor : Antoine Gourru

Work-Study Program Supervision (M2 Students)

Cyprien Godin

University Lumière Lyon 2, 2nd year of Master MALIA (2022-2023)

Topic : *"Survival Models for Renal Transplantation"*

Company : IGL (Lyon)

Mohamed Aziz Rais

University Lumière Lyon 2, 2nd year of Master Data Mining (2021-2022)

Topic : *"Novelty Detection for Predictive Maintenance"*

Company : MODIS (Lyon)

TER Supervision (M2 Students)

Cyprien Godin

University Lumière Lyon 2, 2nd year of Master MALIA (2022-2023)

Topic : *"Time Dependent Variable in Cox Model"*

Mohamed Aziz Rais

University Lumière Lyon 2, 2nd year of Master Data Mining (2021-2022)

Topic : *"Learning from Imbalanced Data with the Nearest-Neighbors Algorithm"*

Thibaut Martinet

University Lumière Lyon 2, 2nd year of Master Data Mining (2021-2022)

Topic : *"An Introduction to Domain Adaptation for Binary Classification"*

Farida Benchalal & Nour-Dass Hammadi

University Lumière Lyon 2, 2nd year of Master Data Mining (2020-2021)

Topic : *"Learning from Imbalanced Data with the Nearest-Neighbors Algorithm"*

Involvement in Research Projects and Contracts

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|-------------------|---|
| 01/2022 - 12/2025 | ANR DIKé Project - Project Member
Title : <i>Bias, fairness and ethics of compressed NLP models</i>
Project Leader : Christophe Gravier (LabHC, UMR CNRS 5516) |
| 04/2020 - 08/2020 | ACADEMICS Poject (Call Scientific Breakthrough) - Project Member as Post-Doctoral Researcher |
| 09/2019 - 03/2020 | ANR LIVES Project - Project Member as Post-Doctoral Researcher
Title : <i>Learning with Interacting Views</i> |

Services, Reviews and Committe

Administrative responsibilities

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|---------------|--|
| 09/2022 - ... | Responsible of the First Year of a Computer Science Degree - University Lumière Lyon 2 |
| 05/2022 - ... | Board Member of the Institute of Communication (ICOM) - University Lumière Lyon 2 |
| 11/2021 - ... | Co-Responsible of Scientific Seminars - ERIC Laboratory
Co-Responsible : Mohamed-Lamine MESSAI |

Program Comittee Member

2023	Conférence sur l'Apprentissage Automatique (CAp)
2023	Extraction et Gestion des Connaissances (EGC, Démo)
2022	International Conference on Information Management and Big Data (SIM-Big)
2022	Extraction et Gestion des Connaissances (EGC)
2021	International Conference on Information Management and Big Data (SIM-Big)

Organization Committe Member

2023	Extraction et Gestion des Connaissances (EGC, Démo)
2021	Conférence sur l'Apprentissage Automatique (CAp)
2018	Multidisciplinary International Social Networks Conference (MISNC)

Review Activities

Conferences

2022	European Conference on Machine Learning (ECML)
2021	Extraction et Gestion des Connaissances (EGC)
2019	International Conference on Artificial Intelligence, Information Processing and Cloud Computing (AIIPCC) International Conference on Artificial Intelligence and Statistics (AI-STATS)
2018	European Conference on Machine Learning (ECML)
2017	European Conference on Machine Learning (ECML)

Journals

2022	Applied Sciences (MDPI) Big Data, Cloud-Based Data Analysis and Learning Systems (MDPI) Computer and Information Sciences (JKSU) International Journal of Environmental Research and Public Health (MDPI) Mathematics (MDPI) Sensors (MDPI)
2021	Expert Systems With Applications (ESWA) Electronics (MDPI) Mathematics (MDPI) Pattern Recognition Letter (PRL) Transactions on Pattern Analysis and Machine Learning (TPAMI)
2020	Applied Stochastic Models in Business Industry (ASMB)

Students Supervision : Post-Doc, PhD et Master Research Internship

PhD Supervision

Irina Proskurina

PhD started in October 2022 on the topic : *"Towards an Ethical Compression of Deep Learning Models"*.

PhD funded by the ANR DIKé Project

Supervision : Julien Velcin (Professor, Director) and Guillaume Metzler

Eliz Peyraud

PhD started in January 2022 on the topic : *"Estimating the Life Span of an Organ After Transplantation"*.

Industrial PhD funded by the French ANRT and in partnership with Institut Georges Lopez (IGL)

Supervision : Julien Jacques (Professor, Director) and Guillaume Metzler

Supervision of M1 and M2 Student Research Internships

Alexiane Fraise (M1)

University Jean-Monnet, 1st year of Master MLDM (2022)

Topic : *"Random Fourier Features for PAC-Bayesian Domain Adaptation"*
Duration : 4 months
Co-Supervisors : Emilie Morvant and Paul Viallard

Irina Proskurina (M2)

University Clermont-Ferrand (2022)
Topic : *"Towards an Ethical Compression of Deep Learning Models"*
Duration : 6 months
Co-Supervisor : Julien Velcin

Publications

International Conferences

5. L.Gautheron, P.Germain, A.Habrard, G.Metzler, E.Morvant, M.Sebban and V.Zantedeschi, *Landmark-based Ensemble Learning with Random Fourier Features and Gradient Boosting*, In the 31st European Conference on Machine Learning & Principles and Practice of Knowledge Discovery in Databases (ECML-PKDD), Ghent, Belgique, Septembre 2020 (core ranking A).
4. R.Viola, R.Emonet, A.Habrard, G.Metzler and M.Sebban, *Learning from Few Positives : a Provably Accurate Metric Learning Algorithm to Deal with Imbalanced Data*, In the 29th International Joint Conference on Artificial Intelligence (IJCAI), Yokohama, Japon, Juillet 2020 (core ranking A*).
3. R.Viola, R.Emonet, A.Habrard, G.Metzler, S.Riou and M.Sebban, *An Adjusted Nearest Neighbor Algorithm Maximizing the F-Measure from Imbalanced Data*, In Proceedings in The 31st International Conference on Tools with Artificial Intelligence (ICTAI), Portland, Oregon, USA, Novembre 2019 (core ranking B).
2. K.Bascol, R.Emonet, E.Fromont, A.Habrard, G.Metzler and M.Sebban, *From Cost-Sensitive Classification to Tight F-Measure Bounds*, In Proceedings in The 22nd International Conference on Artificial Intelligence and Statistics (AISTATS), Naha, Okinawa, Japon, Avril 2019 (core ranking A).
1. G.Metzler, X.Badiche, B.Belkasmi, E.Fromont, A.Habrard and M.Sebban, *Tree-based Cost Sensitive Methods for Fraud Detection in Imbalanced Data*, In Proceedings in the 17th International Symposium on Intelligent Data Analysis (IDA), 's-Hertogenbosch, Pays-Bas, Octobre 2018 (core ranking A).

International Journals

2. R.Viola, R.Emonet, A.Habrard, G.Metzler, S.Riou and M.Sebban, *An Adjusted Nearest Neighbor Algorithm Maximizing the F-Measure from Imbalanced Data*, International Journal on Artificial Intelligence Tools (IJAIT), January 2021 (Q3).

1. G.Metzler, X.Badiche, B.Belkasmi, E.Fromont, A.Habrard and M.Sebban, *Learning Maximum Excluding Ellipsoids with Theoretical Guarantees*, Pattern Recognition Letter (PRL), September 2018 (Q2).

National Conferences

6. E. Peyraud, J. Jacques, G. Metzler et A. Lopez, *Modèle de Cox avec des Données Hétérogènes*, 53 ème Journées de la Statistique de la Société Française de Statistique (JdS), Lyon, Juin 2022.
5. L.Gautheron, P.Germain, A.Habrard, G.Metzler, E.Morvant, M.Sebban and V.Zantedeschi, *Apprentissage d'ensemble basé sur des points de repères avec des caractéristiques de Fourier aléatoires et un renforcement du gradient*, Conférence pour l'Apprentissage Automatique (CAp), Vannes, Juin 2020.
4. R.Viola, R.Emonet, A.Habrard, G.Metzler and M.Sebban, *MLFP : Un algorithme d'apprentissage de métrique pour la classification de données déséquilibrées*, Conférence pour l'Apprentissage Automatique (CAp), Vannes, Juin 2020.
3. R.Viola, R.Emonet, A.Habrard, G.Metzler, S.Riou and M.Sebban, *Une version corrigée de l'algorithme des plus proches voisins pour l'optimisation de la F-mesure dans un contexte déséquilibré*, Conférence pour l'Apprentissage Automatique (CAp), Toulouse, Juillet 2019.
2. K.Bascol, R.Emonet, E.Fromont, A.Habrard, G.Metzler and M.Sebban, *Un algorithme d'optimisation de la F-Mesure par pondération des erreurs de classification*, Conférence pour l'Apprentissage Automatique (CAp), Rouen, Juin 2018.
1. G.Metzler, X.Badiche, B.Belkasmi, E.Fromont, A.Habrard and M.Sebban, *Apprentissage de Sphères Maximales d'exclusion avec Garanties Théoriques*, Conférence pour l'Apprentissage Automatique (CAp), Grenoble, Juin 2017.

A Detailed List of Taught Courses

Année	Niveau	Diplôme	Intitulé	CM/TD/TP	Effectifs CM/TD/TP	Nb groupes	Équivalent heures TD
2017-2018	Master 1	Machine Learning & Data Mining (MLDM, UJM)	Convex Optimization and Operational Research	3h/3h/4h	48/48/24	2 gr. TP	14.8h
2018-2019	Master 1	Machine Learning & Data Mining (MLDM, UJM)	Convex Optimization and Operational Research	3h/3h/4h	48/48/24	2 gr. TP	14.8h
2019-2020	Licence 1	Mathématiques, Informatique, Sciences Physiques pour l'Ingénieur et Chimie (MISPIC, UJM)	Outils Numériques - \LaTeX	0h/0h/8h	0/0/16	4 gr. TP	20.7h
2019-2020	Licence 1	MISPIC, UJM	Outils Informatiques - Python	0h/16h/16h	0/16/16	3 gr. TP	48h
2019-2020	Licence 1	MISPIC, UJM	Bases de Données Relationnelles	0h/0h/16h	16	4 gr. TP	42.7h
2020-2021	Licence 3	Informatique Décisionnelle et Statistiques (IDS, Univ. Lyon 2)	Bases de Données Relationnelles	21h/8h/9h	46/46/23	2 gr. TP	58h
2020-2021	Licence 3	Mathématiques et Informatiques Appliqués aux Sciences Humaines et Sociales (MIASHS, Univ. Lyon 2)	Statistiques Inférentielles	0h/12h/7h	46/23	1 gr. TP	18.8h
2020-2021	Licence 3	MIASHS, Univ. Lyon 2	Modèles Linéaires	0h/10.5h/0h	24	1 gr. TD	10.5h
2020-2021	Licence 3	MIASHS, Univ. Lyon 2	Sondages	0h/10.5h/0h	24	1 gr. TD	10.5h
2020-2021	Master 1	Informatique, Univ. Lyon 2	Statistiques Inférentielles	0h/14h/0h	20	1 gr. TD	14h
2020-2021	Master 2	Statistique et Informatique pour la Science des Données (SISE, Univ. Lyon 2)	Fouilles de Données Massives	3.5h/14h/0h	24/24	1 gr. TD	20h

2020-2021	Master 2	Business Intelligence & Big Data (BI&BD, Univ. Lyon 2)	Fouilles de Données Massives	3.5h/14h/0h	24/24	1 gr. TD	20h
2021-2022	Licence 2	MIASHS, Univ. Lyon 2	Analyse de Données	21h/12h/7h	90/24/24	1 gr TD/TP	51h
2021-2022	Licence 3	IDS, Univ. Lyon 2	Bases de Données Relationnelles	21h/8h/9h	46/46/23	2 gr. TP	58h
2021-2022	Licence 3	MIASHS, Univ. Lyon 2	Statistiques Inférentielles	0h/12h/7h	46/23	2 gr. TP	26h
2021-2022	Licence 3	MIASHS, Univ. Lyon 2	Modèles Linéaires	0h/10.5h/0h	24	3 gr. TD	31.5h
2021-2022	Licence 3	MIASHS, Univ. Lyon 2	Sondages	0h/10.5h/0h	24	2 gr. TD	21h
2021-2022	Master 1	Informatique, Univ. Lyon 2	Statistiques Inférentielles	0h/14h/0h	20	1 gr. TD	14h
2021-2022	Master 2	SISE, Univ. Lyon 2	Fouilles de Données Massives	3.5h/14h/0h	24/24	1 gr. TD	20h
2021-2022	Master 2	BI&BD, Univ. Lyon 2	Fouilles de Données Massives	3.5h/14h/0h	24/24	1 gr. TD	20h
2022-2023	Licence 1	Informatique, Univ. Lyon 2	Environnement Informatique et Internet	0h/14h/0h	35	2 gr TD	28h
2022-2023	Licence 1	Informatique, Univ. Lyon 2	Analyse I	10h/10h/0h	70/35	2 gr TD	35h
2022-2023	Licence 2	Informatique, Univ. Lyon 2	Algèbre	10h/10h/0h	35/35	1 gr TD	25h
2022-2023	Licence 2	MIASHS, Univ. Lyon 2	Analyse de Données	...	90/24/24	... gr TD/TP	... h
2022-2023	Licence 3	Informatique, Univ. Lyon 2	Compilation et Analyse Lexicale	0h/14h/0h	24	1 gr TD	14h
2022-2023	Master 1	Informatique, Univ. Lyon 2	Complexité	0h/18h/0h	24	1 gr. TD	18h
2022-2023	Master 1	MIASHS, Univ. Lyon 2		10h/6h/0h	24/24	1 gr. TD	21h
2022-2022	Master 2	SISE, Univ. Lyon 2	Fouilles de Données Massives	0h/21h/0h	24/24	1 gr. TD	21h
2022-2023	Master 2	BI&A, Univ. Lyon 2	Machine Learning	6h/15h/0h	24/24	1 gr. TD	24h

2022-2023	Master 2	Machine Learning and Intelligence Artificielle (MALIA), Univ. Lyon 2	Recent Advances in Machine Learning	4.5h/6h/0h	24/24	1 gr. TD	12.8h
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EM Lyon Business School

I give a list of activities started during the last year of my PhD. These activities consist in giving some courses in Data Analysis and Statistics and in the supervision students for the writing of their thesis during their internship at the end of their Bachelor's degree.

Teaching

Here is a list of courses given in the school. The language of the title also indicates the language in which the course is taught

Bachelor	Type	Instruction's hours	Course	Years
BBA 1	CM/TD	60h	Mathématiques et Statistiques Appliquées à la Gestion	2020-2022
BBA 1	CM/TD	72h	Analyse de Contenus et de Données	2019-2022

Master of Science	Type	Instruction's hours	Course	Years
Msc in Finances	CM/TD	30h	Financial Mathematics and Statistics	2022-2023
Msc in Finances	CM/TD	30h	Intro to Data Analytics	2022-2023
Msc in Supply Chain & Purchasing Management	CM/TD	24h	Mathematics for Supply Chain	2022-2023

Program <i>Grandes Ecoles</i>	Type	Instruction's hours	Course	Years
PGE 1	TD	12h	Introduction to Business Statistics and Data Analysis	2020-2021

Internships Supervision of 4th year Bachelor Students

List of students followed for the writing of their thesis during their internship at the end of their Bachelor's degree.

Yuren Jin

Company : Western Exchange (2022)

Domain : *Digital Transformation*

Topic : *"Digital Transformation in the Education Consulting Industry"*

Xi Xu

Company : Friends Marketing (2022)

Domain : *Supply Chain*

Topic : *"Supply Chain and Logistic under Global Trends"*

Wen Hau Eng

Company : Huobi Global (2022)

Domain : *Cryptocurrency*

Topic : *"The Risk Management Difference Between Cryptocurrency and Stock Market"*

Haimei Hu

Company : Bel Group (2022)

Domain : *BlockChain*

Topic : *"A Study on the Relationship Between Diversification and Performance of a Chinese Dairy Companies Based on Financial Analysis Perspective"*

Jingru Shen

Company : Poizon (2022)

Domain : *User Experience*

Topic : *"The Relationship Between user Experience and User Retention in E-Commercial Industry"*

Cécile Carrel

Company : Amazon (Germany) (2021)

Domain : *Process Optimization*

Topic : *"Optimization of Processes between the Technical Team and the Design Team"*

Alysée Durand Robin

Company : Jeager-LeCoultre (2021)

Domain : *Digital Marketing*

Topic : *"The challenges of digital marketing for the luxury goods industry"*

Eloïse Monnet

Company : Mon Building (2021)

Domain : *Digital Marketing*

Topic : *"Study of the evolution of consumer habits in co-living and co-working spaces in times of crisis"*

Alexane Royer

Company : IPSOS (2021)

Domain : *Data Analysis and Survey*

Topic : *"The development of DIY tools in the market research sector"*

Mingxiang Xia

Company : Roland Berger (2021)

Domain : Business Analyst

Topic : *"Optimization of Performance Evaluation System Based on Game Theory"*