

Teaching Activities – Marian-Andrei RIZOIU

Teaching activity overview

- I hold a pedagogical degree in higher education and I have a teaching experience of 10 years. Overall, I have delivered more than 600 hours of lectures and tutoring for Undergraduates, Masters and Honours and I lectured in international excellence degree programs, such as the **Masters Erasmus Mundus Excellence DMKM**¹ and the **Franco-Ukrainian Masters IDSM**² (cooperation between the University Lumiere Lyon and the University of Kharkov, Ukraine).
- For the past four years, I obtained high evaluations in ANU's official Student Experience of Learning and Teaching (SELT) (see attached 2017 SELT evaluation of my teaching).
- Throughout my experience, I taught a wide range of CS subjects (Programming, Calculus, Networking, Algorithms Design), of Machine Learning and Data Mining subjects (association rules mining, decision trees, clustering, symbolic learning, ensemble methods) and Social Media Analysis. This documents details the complete list of these courses.
- I have supervised both industrial-embedded and research-oriented internships, at the Undergraduate, Masters and Honours level, with the complete list here blow.

Student supervision

- 2018 – present: **Main supervisor of two PhD students: Quyu Kong (Australian National University & Data61) and Rui Zhang (Australian National University & Data61)**
Linking epidemic models and Hawkes processes; Non-parametric Bayesian estimation of Hawkes processes.
- 2018 – present: **Supervisor of 2 Honours students: Shidi Li and Rohit Ram** Linking epidemic models
Developing the theory of interval-censored Hawkes processes; influence measures in social media.
- 2017
June to Dec: **Supervision of a Visiting PhD Research student (Tongji University)**
Popularity Linking professions (developer, librarian, CEO) to psychological traits inferred from text.
- 2016 – 2017: **Co-supervision of the PhD student Siqi Wu (Australian National University)**
Popularity dynamics in a large collection of tweeted Youtube videos.
- Supervision of 4 Masters/Honours projects**
Quantifying user influence in social networks, EM for point processes, Detecting the reduction in online diversity.
- 2015 – present: **Co-supervision of the PhD student Swapnil Mishra (ANU & NICTA)**
Prediction of popularity in Social Media.
- 2014 – 2015: **Honours Research Project (Australian National University)**
Develop visualisation tool for big social graphs, analyze information diffusion in social networks and link to popularity evolution.
- 2012 – 2013: **Case Study (Masters European Erasmus Mundus DMKM)**
Improve and optimise a topic extraction engine, from a corpus of texts of discussion forums.
- Research Initiation (Masters Computer Science)**
Improving the visualisation of online social networks, extracted from discussion web forums.
- Academic Tutor for student professional internship**
After 3 semesters of coursework, student did a one-month internships in industry (in banks, insurance companies or software development enterprises).
- 2011 – 2012: **Case Study (Masters European Erasmus Mundus DMKM)**
Develop a visualisation tool for online social networks, extracted from discussion web forums.
- 2010 – 2011 : **Case Study (Masters European Erasmus Mundus DMKM)**
Improve an article retrieving platform from online media journals, develop parsers, creation of a data warehouse and textual topic extraction.

1 European Master of Excellence in Machine Learning and Knowledge Discovery. [Website](#).

2 Master of Business Intelligence and Statistics for Management. [Website](#).

Research Initiation (Masters Computer Science)

Develop a temporal visualisation tool for textual topics, extracted from online discussion forums.

Academic Tutor for student professional internship

After 3 semesters of coursework, student did a one-month internships in industry (in banks, insurance companies or software development enterprises)

2009 – 2010 : Research Initiation (Masters Computer Science)

Develop an article retrieving platform from online media journals, develop parsers, creation of a data warehouse and textual topic extraction.

Teaching activity

| Year | Sem | Course name (type and level) and brief description | vol |
|---|-----------|--|-----|
| 2018: Lecturer @ANU | Sem. 2 | Convener Document Analysis (3rd year Undergraduate and Honours) Linear classifiers, clustering, graph theory, visualisation tools, centrality and community measures, sentiment analysis. | 40h |
| 2017: Research Fellow @ANU | Sem. 2 | Convener Document Analysis (3rd year Undergraduate and Honours) Linear classifiers, clustering, graph theory, visualisation tools, centrality and community measures, sentiment analysis. | 40h |
| 2016: Research Fellow @ANU | Sem. 2 | Convener Document Analysis (3rd year Undergraduate and Honours) Linear classifiers, clustering, graph theory, visualisation tools, centrality and community measures, sentiment analysis. | 40h |
| | Sem. 1 | Advanced Databases and Data Mining (3rd year Undergraduate) Concepts of data warehousing and OLAP techniques, fundamental data mining algorithms. | 30h |
| 2015: adjunct @ANU | Sem. 2 | Document Analysis (3rd year Undergraduate and Honours) Notions of classification and clustering, graph theory, visualization tools, centrality and community measures, sentiment analysis. | 20h |
| 2013 – 2014: Teaching assistant University Lyon 2 | Sem. 1 | Software Methodologies (Tutoring Masters Erasmus Mundus DMKM) Development of computer systems, complex systems. | 15h |
| | | Numerical Machine Learning (Lecturing Master Erasmus Mundus DMKM) Association rules mining and ensemble methods. | 3h |
| | | Object Oriented Programming (Lecturing&Tutoring Masters IDSM Kharkov) Introduction in object-oriented programming, Java GUIs, APIs. | 25h |
| | Sem. 2 | Data Mining (Tutoring Masters IDSM Kharkov) Data analysis in R: processing and data cleaning, statistical analysis, data mining. | 14h |
| 2012 – 2013: Teaching assistant University Lyon 2 | Sem. 1 | Software Methodologies (Tutoring Masters Erasmus Mundus DMKM) Development of computer systems, complex systems. | 15h |
| | | Object Oriented Programming (Lecturing&Tutoring Masters Computer Science) Introduction in object-oriented programming, Java GUIs, APIs. | 25h |
| | | Scientific Calculation (Tutoring undergraduates) Programming in Octave, statistical and graphical calculations, time series analysis. | 14h |
| | | Numerical Machine Learning (Lecturing Master Erasmus Mundus DMKM) Association rules mining and ensemble methods. | 3h |
| | Sem. 2 | UNIX Operating Systems et C programming language (Lecturing&Tutoring undergraduates IDS) Usage and administration of UNIX systems, Bash programming, C language programming. | 25h |
| | | Symbolic learning (Tutoring Master Erasmus Mundus DMKM) | 15h |

Introduction to artificial intelligence, machine learning, Formal Concept Analysis, Decision Trees, Association Rules.

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|-----------------------|--------|--|-----|
| | | Object Oriented Programming (Lecturing&Tutoring Masters IDSM Kharkov) | 25h |
| | | Introduction in object-oriented programming, Java GUIs, APIs. | |
| 2011 – 2012: | Sem. 1 | Numerical Calculus (Lecturing&Tutoring undergraduates) | 21h |
| Teaching assistant | | Personalised functions and VBA macros, Excel visual interfaces. | |
| | | Scientific Calculation (Tutoring undergraduates) | 14h |
| | | Programming in Octave, statistical and graphical calculations, time series analysis. | |
| University Lyon 2 | | Numerical Machine Learning (Lecturing Master Erasmus Mundus DMKM) | 3h |
| | | Association rules mining and ensemble methods. | |
| | Sem. 2 | Numerical Calculus (Lecturing&Tutoring undergraduates) | 42h |
| | | Personalised functions and VBA macros, Excel visual interfaces. | |
| 2010 – 2011: | Sem. 1 | Initiation in programming in Visual Basic (Tutoring undergrads) | 21h |
| Teaching assistant | | Notions of programming in Visual Basic, sort algorithms, data structures, graphical interfaces. | |
| | | Object Oriented Programming (Tutoring Masters Computer Science) | 6h |
| | | Introduction in object-oriented programming, Java GUI, API | |
| University Lyon 2 | | | |
| | Sem. 2 | Numerical Calculus (Lecturing&Tutoring undergraduates) | 11h |
| | | Personalised functions and VBA macros, Excel visual interfaces. | |
| | | ACCESS Databases (Tutoring undergraduates IDEA) | 28h |
| | | Introduction to databases, tables, queries, reports. | |
| 2009 – 2010: | Sem. 1 | Initiation in programming in Visual Basic (Tutoring undergrads) | 42h |
| Teaching assistant | | Notions of programming in Visual Basic, sort algorithms, data structures, graphical interfaces. | |
| | Sem. 2 | Numerical Calculus (Lecturing&Tutoring undergraduates) | 11h |
| | | Personalised functions and VBA macros, Excel visual interfaces. | |
| University Lyon 2 | | ACCESS Databases (Tutoring undergraduates) | 14h |
| | | Introduction to databases, tables, queries, reports. | |
| 2008 – 2009 : | Sem. 1 | Communication Networks (Tutoring Engineering undergraduates) | 56h |
| TA | | Notions of networking, communication protocols (TCP, IP, SSH), routing protocols (OSPF, RIP, IS-IS), local networks. | |
| Polytechnic Bucharest | | | |
| 2007 – 2008 : | Sem. 2 | Constructing and implementing algorithms (Tutoring Engineering undergraduates) | 56h |
| TA | | Initiation to the construction of algorithms, data structures, graph structures and algorithms, spatial and temporal complexity calculation. | |
| Polytechnic Bucharest | | | |

Total: 614h

Other courses capable to teach: Operating System, Programming Languages (C/C++, Java, Python, C# etc.), Algorithms, Data Structures, Assembler, Databases, Object Oriented Programming, Parallel Programming, Operating Systems Programming, Web Programming, Data Mining / Machine Learning.