

Ruggiero Seccia

PERSONAL PROFILE

I am a motivated Optimization and Machine Learning expert passionate about quantitative methods and engineering applications. My background enables me to analytically tackle complex real-world problems and find sound and robust solutions fitting business requirements.

EDUCATION

- Nov 2017- Ongoing **PhD in Operations Research**, at Sapienza University of Rome¹, Italy
- *Supervisor:* Professor Laura Palagi
 - *Main research:* Optimization algorithms for Machine/Deep Learning applications
 - *Skills developed:* critical and analytical mindset in developing and carrying on well-structured long-term projects involving people with different backgrounds and needs.
- Feb 2019 – Jun 2019 **Visiting scholar** at the University of Wisconsin-Madison, USA
- *Supervisor:* Professor Steve Wright
 - *Main Research:* Machine Learning with overparametrized models
 - *Skills developed:* I learnt to be independent and flexible, adapting to new environments and able to build long-term collaborations with other researchers.
- Mar 2017- Oct 2017 **“Excellence program”** at Sapienza University of Rome, Italy
- *Description:* Chosen among the 10 best M.Sc. students in Management Engineering for attending extra courses on cutting-edge topics.
- Sept 2015-Oct 2017 **M.Sc. in Management Engineering** at Sapienza University of Rome, Italy
- *Grade:* 110 cum Laude /110.
 - *Thesis:* A Decomposition method for training Deep Feedforward Neural Networks
- Jan 2017- Jun 2017 **Erasmus+ program** at the University of Namur, Belgium
- Sept 2012- July 2015 **Bachelor in Management Engineering** at Sapienza University of Rome, Italy
- *Grade:* with 110 cum Laude /110
 - *Thesis:* Genetic algorithms: crossing over and mutation techniques.
- Sept 2007- July 2012 High school at **“Liceo Classico Cornelio Tacito”**, Italy. Degreed with 95/100

WORK EXPERIENCES

- Jan 2019 – ongoing **Freelance** for Operations Research and Machine Learning projects.
- *Description:* with a team of algorithms engineers, I develop Optimization and Machine Learning algorithms for business applications.
 - *Main projects:*
 - o Optimizing the technical offer of a main public transportation company for a public tender in Italy
 - o AI-based rehabilitation program for a main hospital in Rome
- Aug 2019- Dec 2019 **Internship** in the Data Science Elite team of IBM in Munich, Germany

¹ Full name PhD program: Automatic Control, Bioengineering and Operations Research. Department of Computer, Control and Management engineering “Antonio Ruberti” (DIAG).

- *Description:* I supported several projects in the Middle East area by understanding clients' needs, translating them to mathematical formulations and developing ad-hoc Machine Learning and Optimization tools for their business applications.
- *Skills developed:* I developed both my technical and soft skills, getting familiar with *agile methodology* and *design thinking* to speed up project development as well as learning how to interact with clients and business constraints.

TEACHING EXPERIENCES

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| Nov 2020 – ongoing | Adjunct professor for the course “Operations Research laboratory” (3CFU) at the Faculty of Management Engineering of the University of Rome “La Sapienza” |
| & | |
| Mar 2018 – Feb 2019 | <ul style="list-style-type: none"> - <i>Description:</i> the course aims at providing standard modelling strategies for solving real-world Optimization problems with pyomo/AMPL - <i>Skills developed:</i> communication, presentation and public speaking skills. |
| (90 hours) | Oct 2018 - Feb 2019 Tutor in Operation Research, University of Rome “La Sapienza”, DIMA |
| Feb 2018 - July 2018
(90 hours) | Tutor in Operations Research, University of Rome “La Sapienza”, DIAG |

OTHER EXPERIENCES

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| Jan 2015 - Dec 2016 | Member of the no-profit association “Amici di Simona” <ul style="list-style-type: none"> - <i>Description:</i> It is a no-profit association which helps immigrant children to integrate in our society and at school. I follow these students in scientific subjects making sure that they understand what has been taught in class. |
| Jun 2008 - Jun2015 | Activity Organiser of “GREST” summer camps for “San Pio X” parish of Rome. |

COMPUTER SKILLS

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| Good knowledge of: | Python, MATLAB, CPLEX, AMPL, Git, Tableau, KNIME, Watson Studio, Cloud Pack for Data, Excel |
| Knowledge of: | Bash, R, JAVA, ARENA, Julia, Weka, |

LANGUAGES

Italian (Native)	English (C1, IELTS exam: 7)	French (Basic Level)
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AWARDS

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| Feb 2019 | Joint PhD scholarship for carrying on research at the University of Wisconsin-Madison. Funded by the University of Rome “La Sapienza”, Italy |
| Oct 2018 | Mobility program scholarship for attending the IWR School "Advances in Mathematical Optimization". Funded by the University of Hidelberg |
| Mar 2018 | Excellent graduated student for the academic year 2017-2018 at the University of Rome “La Sapienza”, Italy |

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CERTIFICATIONS

May 2020	AI for medical diagnosis , released by Coursera
Nov 2019	Data Science Profession Certification – Level 1, released by IBM
Oct 2019	Data Scientist Project Badge , released by IBM
Aug 2019	Enterprise Design Thinking Practitioner , released by IBM

ADDITIONAL COURSES

Jul 2019 (one week)	Summer school on Optimization, Big data and Applications (OBA) 2nd edition , Veroli (Italy)
Oct 2018 (one week)	IWR School "Advances in Mathematical Optimization" , Heidelberg (Germany)
Jul 2018 (one week)	Advanced Course on Data Science and Machine Learning (ACDL) , Siena (Italy)
Nov 2017 (two weeks)	Course on Optimization in Finance , University “Roma3”, Rome (Italy)
Jul 2017 (one week)	Summer school on Optimization, Big data and Applications (OBA) , Veroli (Italy)
Jul 2015 (one week)	Intermodal Transportation course , University of Gdansk (Poland)

LIST OF RESEARCH PUBLICATIONS

Published:

- Palagi L., Seccia R. **Block layer decomposition schemes for training deep neural networks.** *Journal of Global Optimization* (2019). <https://doi.org/10.1007/s10898-019-00856-0>
- Foglino F., Leonetti M., Sagratella S., Seccia R. **A Gray-Box Approach for Curriculum Learning.** *Optimization of Complex Systems: Theory, Models, Algorithms and Applications* (2019). WCGO 2019. Advances in Intelligent Systems and Computing, vol 991. Springer, Cham. https://doi.org/10.1007/978-3-030-21803-4_72
- Seccia R., Gammelli D., Dominici F., Romano S., et al. **Considering patient clinical history impacts performance of machine learning models in predicting course of multiple sclerosis.** (2020) *PLOS ONE* 15(3): e0230219. <https://doi.org/10.1371/journal.pone.0230219>
- Seccia R., Boresta M., Fusco F., Tronci E., et al. **Data of patients undergoing rehabilitation programs.** *Data In Brief*, Springer <https://doi.org/10.1016/j.dib.2020.105419>
- Seccia R., Leo G., Vahdat M., Wali H. **Coupling Machine Learning and Integer Programming for Optimal TV Promo Scheduling.** Accepted for the *18th Cologne-Twente Workshop on Graphs and Combinatorial Optimization* (in press).
- Seccia R., Romano S., Salvetti M., et al. **Machine Learning use for prognostic purposes in Multiple Sclerosis** (2020). Accepted to *Life*.

Submitted:

- Seccia R., **The Nurse Rostering Problem in COVID-19 emergency scenario.** Submitted to *Operations Research for Healthcare*. Preprint available at http://www.optimization-online.org/DB_HTML/2020/03/7712.html
- Palagi L., Seccia R. **On the convergence of a Block-Coordinate Incremental Gradient method.** Submitted to *Soft Computing*.
- Seccia R., Foglino F., Leonetti M., Sagratella S. **A novel optimization perspective to the problem of designing sequences of tasks in a reinforcement learning framework.** Submitted to *Optimization and Engineering*

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