Ilaria Ciocci

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EDUCATION

Sapienza University of Rome November 2024 - present
PhD Program in Automatic Control, Bioengineering and Operations Research *Rome, Italy*
Curriculum: Operations Research

Sapienza University of Rome October 2022 - July 2024
Master's Degree in Management Engineering *Rome, Italy*
Grade: 110/110 cum laude
Curriculum: Decision-making models for management engineering

- Thesis: *Block Decomposition Methods for training Deep Neural Networks*; Thesis supervisors: Prof. Laura Palagi, Dr. Corrado Coppola, Dr. Lorenzo Papa
- Relevant Courses: Optimization Methods for Machine Learning, Continuous Optimization, Complex Systems Optimization, Combinatorial Optimization, Machine Learning for Industrial Engineering, Modeling and Identification

Sapienza University of Rome October 2019 - October 2022
Bachelor's Degree in Management Engineering *Rome, Italy*
Grade: 110 / 110 cum laude

I.I.S. Dante Alighieri 2014 - 2019
Scientific High School Diploma *Anagni, Italy*
Grade: 100 / 100

IMPLEMENTATION PROJECTS

Master's thesis | *Python*
- Developed a block decomposed version of a watchdog controlled minibatch algorithm using the PyTorch library, starting with layer-wise decomposition and evolving to a final block-decomposition approach. This implementation included additional control mechanisms to dynamically select the blocks of variables to update, enhancing the computational efficiency of training deep neural networks.

Optimization Methods for Machine Learning | *Python*
- Multilayer Perceptron and Radial Basis Function Neural Networks to solve a regression problem
- Support Vector Machines to solve an image classification problem

Complex Systems Optimization | *Python*
- Implemented and analysed an Augmented Lagrangian Method for nonlinear constrained optimization problems

Continuous Optimization | *Python*
- Newton's Method for local optimization
- Sequential Penalty Algorithm for constrained optimization
- Simulated Annealing for global optimization

PUBLICATIONS

I. Ciocci, C. Coppola, L. Palagi, L. Papa, *Block Layer decomposition applied to a watchdog controlled minibatch algorithm*, Department of Computer, Control and Management Engineering Library [Technical Report]

EXPERIENCE AND AWARDS

Participation in the Management Engineering Excellence Program March 2024 - July 2024

- 1st position in the ranking of the highest achieving students of Management Engineering, I was admitted to the Student Honors Program, a set of courses and seminars aimed at enhancing the education of the most deserving students.

Participation in the Supply Chain Game December 2022

- Team competition on Supply Chain Management in a virtual scenario. I had the possibility of applying my knowledge about Operations Management.

Participation in the Business Game UMC2 March 2022 – May 2022

- Team competition about running a firm in a virtual market. This experience gave me the opportunity to test my knowledge about Business Management and to improve my decision-making abilities and strategic approach.

School Work Experience at "Complete Sport Solutions LTD." - *Chester, United Kingdom* July 2018

- I worked for two weeks as a Tour Operator assistant in the Sport Industry and I improved my language and communication skills, my critical thinking and my abilities in teamworking.

TECHNICAL SKILLS

Computer skills Good knowledge: Python, Microsoft Office, LaTeX; Familiar with: AMPL, MySQL
Python Libraries PyTorch, NumPy, Scikit-Learn, SciPy, Pandas

LANGUAGES

English professional knowledge; B2 Cambridge Certificate (2018)
Italian mother tongue
Spanish basic knowledge; Level A2 - DELE Certification, Instituto Cervantes (2014)