

# UMBERTO JUNIOR MELE

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## BIO

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With a strong background in Computer Science, Mathematics, and Statistics, I specialize in resolving intricate problems, specifically those known as NP-hard problems. My interests lie in understanding and utilizing large-scale AI models, also known as foundation models, which learn from extensive data and are then fine-tuned for specific tasks. I am devoted to conducting research and finding practical applications for these models, while fostering a culture of continuous learning within the AI domain.

## EDUCATION

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<b>PhD in Artificial Intelligence</b> , Università della Svizzera Italiana	Expected 2023
<b>Master in Data Science</b> , La Sapienza University of Rome	2019
<b>Bachelor in Management Engineering</b> , La Sapienza University of Rome	2016

## EXPERIENCE

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<b>Teaching Assistant</b> Università della Svizzera Italiana	2019 - 2023 <i>Lugano, Switzerland</i>
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- Teaching, grading, and creating exercises for both the Bachelor's and Master's AI courses were accomplished.
- Seven Master's students were supervised on their thesis projects, with topics suggested and progress tracked.

<b>Researcher</b> Dalle Molle Institute for Artificial Intelligence	2019 - 2023 <i>Lugano, Switzerland</i>
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- Two journal papers were successfully published, accompanied by four conference proceedings.
- Participated in six conferences, showcasing Machine Learning's application in Combinatorial Optimization.
- Achieved a notable third position in an international competition centered around reinforcement learning techniques for solving vehicle routing problems.

## PUBLICATIONS

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**A new constructive heuristic driven by machine learning for the traveling salesman problem.**

Umberto Junior Mele, Luca Maria Gambardella, Roberto Montemanni, *Algorithms*, 2021, [doi:10.3390/a14090267](https://doi.org/10.3390/a14090267)

**Machine learning approaches for the traveling salesman problem: A survey.**

Umberto Junior Mele, Luca Maria Gambardella, Roberto Montemanni, *Proceedings of the 8th International Conference on Industrial Engineering and Applications (Europe)*, 2021, [doi:10.1145/3463858.3463869](https://doi.org/10.1145/3463858.3463869)

**Reinforcement learning and additional rewards for the traveling salesman problem**

Umberto Junior Mele, Luca Maria Gambardella, Roberto Montemanni, *Proceedings of the 8th International Conference on Industrial Engineering and Applications (Europe)*, 2021, [doi:10.1145/3463858.3463885](https://doi.org/10.1145/3463858.3463885)

## SKILLS

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<b>Technical Skills</b>	Reinforcement Learning, Machine Learning, Combinatorial Optimization, Statistics
<b>Soft Skills</b>	Creativity, Motivation, Resilience, Positivity
<b>Languages</b>	Italian, English, Portuguese

## EXTRA-CURRICULAR ACTIVITIES

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- Since the age of six, my piano skills have been perfected, fueled by a profound love for classical music.
- Salsa and bachata hold a special place in my heart, as they embody my passion for dance and self-expression.