



David Simões

Curriculum Vitae

Work Experience

- 2021–Present **Senior Robotics Software Engineer - Distributed Intelligence,**
(3+ years) *Rapyuta Robotics*, Japan, fully remote from Portugal.
Member of the Distributed Intelligence team, focusing on high-level coordination among fleets of robots and humans. Responsible for designing, implementing, and maintaining components that interact with global or local entities to optimize time wasted for clients, by guiding each to the most suitable locations. <https://youtu.be/FxDZs16ygPo>
- 2020–2021 **Robotics Software Engineer - Planning & Execution,**
(2 years) *Aeolus Robotics*, Taiwan, fully remote from Portugal.
Member of the PLEX (Planning & Execution) team, focusing on high-level behavior control, framework design, and systems integration. Responsible for implementing business logic control, site deployment tools, and high-quality efficient simulation testing. Designed, implemented, and maintained the state machine component that guided the complete high-level behavior of the robot. <https://youtu.be/8-ePGnLnCt4>

Education

- 2015–2020 **PhD in Computer Science,**
Universities of Minho, Aveiro and Porto, Portugal.
Winner of the *Best PhD Thesis Award 2019-20 in Artificial Intelligence* by APPIA.
- 2013–2015 **MSc in Computer and Telematics Engineering,**
University of Aveiro, Portugal, 18/20.
Master's Degree with 18/20 GPA.

Personal Software Projects

Chrono, *Puzzle Platformer Game.*

Lead developer of the a puzzle platformer videogame, planning, designing, and developing the entire project across the full stack. Tasks included designing all the puzzles, implementing game logic, refining the overall look and feel of the game, testing, maintaining, and publishing it. The game is currently available for sale on Steam and Itch.io. <https://store.steampowered.com/app/3015650/Chrono/>

MicroEevee, *Robotic Pokémon.*

The system for a DIY robotic Pokémon to participate in the Micro-Mouse competition, as well as the simulated agent for the Ciber-Mouse competition. <https://github.com/david-simoes-93/MicroEEVEE>

Work Skills

Programming Languages	Experienced with C++20, Python 3, and C#. Familiar with Java 8, SQL, R, MatLab, JavaScript, and C.
Game Engines	Experienced with Unity and Unreal Engine 5. Many years working with both on commercial projects and on an open-source online RPG.
Deep Learning	Experienced with TensorFlow. Have worked on reinforcement learning in cooperative multi-agent environments, where agents learn cooperative policies to complete a task, and learn a communication protocol that enables them to cooperate. Have designed and published multiple algorithms in the field. Also worked with deep learning for image processing, working on real-time live-streamed data for robots or controllers.
Robotics	Experienced with ROS1, familiar with ROS2. Hands-on experience with high-level control of a humanoid at-home robot, following business logic by integrating all sensor data, planning, and acting accordingly, while maintaining safety measures. Hands-on experience on distributed components that synchronize information from multiple sources and optimize a strategy to coordinate both robots and humans such that work throughput is maximized.

PhD Thesis

title	<i>Learning Coordination in Multi-Agent Systems</i>
supervisors	Doctor Nuno Lau and Doctor Luís Paulo Reis
description	This research project aims at using machine learning to develop general coordination and communication methodologies that enable teams of autonomous agents/robots, possibly with different skills and knowledge, to accomplish complex collective tasks. The coordination methodologies are based in deep learning techniques and solutions, focusing on reinforcement learning approaches, where coordination and communication can be jointly learned. Proposed solutions will be applied in several different cooperative and competitive domains, such as robotic soccer, maze-solving tasks, and pursuit games.

Communities

Member, Stack Exchange.

Active member of the StackOverflow, Movies & TV, and Role-Playing Games communities. <https://stackexchange.com/users/2293919/bluemoon93>

Publisher, itch.io.

Indie game dev, game jam participant. <https://bluemoon93.itch.io/>

Member, GitHub.

Deep reinforcement learning algorithms, on-line videogames, movie- and game-management software, video-game emulators, among others. <https://github.com/david-simoes-93>



Researcher, Google Scholar.

Multi-agent systems, deep reinforcement learning, robotics. <https://scholar.google.pt/citations?user=IuZXJFgAAAAJ>

Writer, DM's Guild.

Dungeons & Dragons book writer, donating profits for charity. <https://www.dmsguild.com/browse.php?author=David%20Simoes>

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