



# Samuel Gomes

Ph.D. Candidate – Computer Science and Engineering

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During my student years, I received a B.Sc. and later a M.Sc. degrees in Computer Science (CS) and Engineering from Técnico Lisboa, focusing on the fields of Artificial Intelligence (AI) and Games. Currently, as a researcher at INESC-ID and Ph.D. candidate at Técnico Lisboa, I continue to study CS areas such as adaptation, computer-driven peer interaction, serious games technologies, and affective computing, along with other fields such as education science and psychology, while always striving to improve both my hard and soft skills.

## Experience

### Teaching Assistant – Técnico Lisboa



(2019 – Now)

I worked as a Teaching Assistant (TA) in multiple CS and Engineering courses:

- Game Design (M.Sc.) during the academic years [2022/2023](#) and [2023/2024](#);
- Game Development Methodology (M.Sc.) during the academic year [2022/2023](#);
- Logic for Programming (B.Sc.) during the academic years [2019/2020](#), [2020/2021](#), [2021/2022](#), [2022/2023](#), and [2023/2024](#);
- Three-Dimensional Visualization and Animation (M.Sc.) during the academic years [2020/2021](#) and [2021/2022](#).

With this role, I developed teaching and coaching skills, while also improving my technical know-how in the areas connected to logic programming and computer graphics (protégé effect). I was awarded with two Teaching Excellence Diplomas issued by Técnico Lisboa, as mentioned further on.

### Early Stage Researcher and Developer – INESC-ID



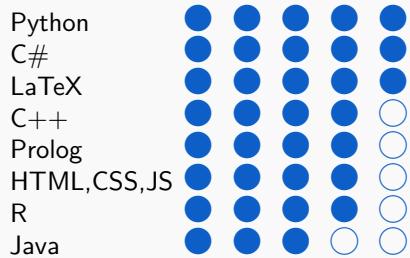
(2017 – Now)

I worked as a research assistant and developer in several projects:

- My Ph.D. project [GIMME](#), that remains active since January of 2020 with Ref. SFRH/BD/143460/2019 (granted by Fundação para a Ciência e a Tecnologia);
- The [AMIGOS](#) project (May of 2018 – December of 2019) with Ref. PTDC/EEISII/7174/2014;
- The European Union's Horizon 2020 [LAW-TRAIN](#) project, with Ref. 2020-FCT-2014/ 653587 (October of 2017 – April of 2018).

## Technical Skills

### Programming Languages



### Libraries and Frameworks

django  
d3.js, node.js, express.js  
CUDA, AWS API

### Tools

Unity 3D, Godot Engine  
Git (GitKraken, SourceTree)  
SPSS

Mongo db, SQLite, MySQL  
Kate, JetBrains (IntelliJ IDEA, CLion, Rider), Visual Studio  
Blender 3D, Inkscape, Krita  
Audacity

### Operational Systems

Linux, Windows

## Idioms

Portuguese – Birth Language

English – Fluent

Mandarin – Introductory Business Mandarin Course by Portal Martim Moniz

This role leveraged me to develop my research skills, and complemented my doctoral studies with know-hows in robotics, affective computing, psychology, and education science.

### Developer and Graphical/Audio Designer – Coding Competitions

(2017 – 2021)

I participated in multiple coding competitions, ranging from game jams to a hackaton. In specific, I participated in:

- Global Game Jam during the years [2018](#), [2019](#), [2020](#), and [2021](#);
- Google HashCode during the years [2018](#), [2019](#), and [2021](#);
- [Gulbenkian Hack for Good 2017](#).

These events helped me to develop my coding and game development skills (coding and designing graphical and audio game elements), and also my soft skills and peer relatedness. I made new friends along the way, as I worked in several Global Game Jam editions with people I didn't know before.

## Education

### Ph.D. in CS and Engineering – Técnico Lisboa

(2018 – Now)



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As a Ph.D. candidate at Técnico Lisboa, I study areas such as adaptation, computer-driven human-human interactions, serious games technologies, and affective computing. My Ph.D. thesis, supervised by professors [Carlos Martinho](#) and [João Dias](#), focuses on the management of work groups based on individuals' preference for certain styles of interaction, such as competition or collaboration. This work already originated multiple [publications in international conferences](#).

Since the start of my doctoral studies, I improved my research and data treatment skills, and acquired knowledge not only in CS, but also in other fields such as education science and psychology. I also had the opportunity to practice and improve my technical skills, and use tools, frameworks, and programming languages which I never used before (e.g. django for Python, R).

### B.Sc. in CS and Engineering, M.Sc. in Games and Data Analysis – Técnico Lisboa

(2012 – 2017)



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Throughout these degrees, I developed not only technical skills, but also other practical know-hows, such as time management skills and soft skills targeted at group-based development. More importantly from an academic perspective, I developed self-determination, given that I related with multiple peers, learned how to study autonomously, and improved my competencies.

I was awarded Merit Diplomas associated to the B.Sc. and M.Sc. degrees, and an Excellence Diploma associated to the M.Sc. degree, both issued by Técnico Lisboa.

My M.Sc. thesis, supervised by professors [João Dias](#) and [Carlos Martinho](#), focused on creating and testing of a GPU-enhanced variant of the Rapidly-exploring Random Tree search algorithm. This work originated a [publication in the EPIA AI conference](#).

## Research Publications

(2017 – 2023)

### Conference

**Samuel Gomes**, Tomás Alves, João Dias, and Carlos Martinho, "Reward-Mediated Individual and Altruistic Behavior", 2022, In: Videogame Sciences and Arts. VJ 2020. [[PDF](#)]

Tomás Alves, **Samuel Gomes**, João Dias, and Carlos Martinho, "The Influence of Reward on the Social Valence of Interactions", 2020, In: IEEE Conference on Games (CoG) 2020. [[PDF](#)]

Filipa Correia, **Samuel Gomes**, Samuel Mascarenhas, Francisco S. Melo, and Ana Paiva, "The Dark Side of Embodiment Teaming Up With Robots VS Disembodied Agents", 2020, In: Robotics: Science and Systems. [[PDF](#)]

Fernando P. Santos, Samuel Mascarenhas, Francisco C. Santos, Filipa Correia, **Samuel Gomes**, and Ana Paiva, "Picky losers and carefree winners prevail in collective risk dilemmas with partner selection", 2020, In: Auton. Agent Multi-Agent Syst. 34, 40. [[PDF](#)]

**Samuel Gomes**, João Dias, and Carlos Martinho, "Group Interactions Manager for Multiplayer sErious games", 2019, In: IEEE Conference on Games (CoG) 2019. [[PDF](#)]

Filipa Correia, Samuel Mascarenhas, **Samuel Gomes**, Patrícia Arriaga, Iolanda Leite, Rui Prada, Francisco S. Melo, and Ana Paiva, "Exploring Prosociality in Human-Robot Teams", 2019, In: 14th ACM/IEEE International Conference on Human-Robot Interaction (HRI'19). [[PDF](#)]

Fernando P. Santos, Samuel Mascarenhas, Francisco C. Santos, Filipa Correia, **Samuel Gomes**, and Ana Paiva, "Outcome-based Partner Selection in Collective Risk Dilemmas", 2019, In: Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems. [[PDF](#)]

**Samuel Gomes**, João Dias, and Carlos Martinho, "Iterative Parallel Sampling RRT for Racing Car Simulation", In: Progress in Artificial Intelligence. EPIA 2017, Lecture Notes in Computer Science, vol 10423. Springer, Cham. [[PDF](#)]

## Journal

Luis Felipe Coimbra Costa, **Samuel Gomes**, Ana Moura Santos, Geraldo Bonorino Xexéo, Yuri Oliveira De Lima, Rui Prada, Carlos Martinho, and João Dias, "Heroine's Learning Journey: Motivating Women in STEM Online Courses Through the Power of a Narrative," in IEEE Access, vol. 12, pp. 20103-20124, 2024, doi: 10.1109/ACCESS.2024.3360376. [[PDF](#)]

**Samuel Gomes**, José Bernardo Rocha, João Dias and Carlos Martinho, "Designing a Mood-Mediated Multi-level Reasoner," in IEEE Transactions on Affective Computing, doi: 10.1109/TAFFC.2023.3293310. [[PDF](#)]

**Samuel Gomes**, Luis Costa, Carlos Martinho, João Dias, Geraldo Xexéo, and Ana Moura Santos, "Modeling students' behavioral engagement through different in-class behavior styles", 2023, In: International Journal of STEM Education, 10.1: 21. [[PDF](#)]

Patrícia Alves-Oliveira, **Samuel Gomes**, Ankita Chandak, Patrícia Arriaga, Guy Hoffman, and Ana Paiva, "Software architecture for YOLO, a creativity-stimulating robot", 2020, In: SoftwareX, 11, 100461. [[PDF](#)]

## Demo

**Samuel Gomes**, Tomás Alves, João Dias, and Carlos Martinho, "Message Across: A word matching game for reward-based in-game behavior change", 2022, In: Videogame Sciences and Arts. VJ 2020. [[PDF](#)]

Filipa Correia, Samuel Mascarenhas, **Samuel Gomes**, Silvia Tulli, Fernando P. Santos, Fernando C. Santos, Rui Prada, Francisco S. Melo, and Ana Paiva, "For The Record - A Public Goods Game For Exploring Human-Robot Collaboration", 2019, In: Proceedings of the 18th International Conference on Autonomous Agents and MultiAgent Systems. [[PDF](#)]

## Presentation

**Samuel Gomes**, and Luis Costa. "Behavioral Analysis of Math Students' Engagement.", 2022, Presented at: Encontro Nacional da Sociedade Portuguesa de Matemática 2022 (ENSPM 2022). [[PDF](#)]

## Workshop

Silvia Tulli, Filipa Correia, Samuel Mascarenhas, **Samuel Gomes**, Francisco S. Melo, Ana Paiva (2019). Effects of Agents' Transparency on Teamwork. In: Calvaresi, D., Najjar, A., Schumacher, M., Främling, K. (eds) Explainable, Transparent Autonomous Agents and Multi-Agent Systems. EXTRAAMAS 2019. Lecture Notes in Computer Science, vol 11763. Springer, Cham. [[PDF](#)]

## Thesis

**Samuel Gomes**, João Dias, and Carlos Martinho, "Application and Design of GPU Parallel RRT for Racing Car Simulation. Case Study of Iterative Parallel Sampling RRT applied to The Open Racing Car Simulator", M.Sc. Thesis, 2017, Instituto Superior Técnico. [[PDF](#)]

## Supervision

(2020 – Now)

I helped in the supervision of:

- The (on-going) Técnico Lisboa M.Sc. thesis entitled "[Player Modeling with Artificial Intelligence in a Cooperative Setting](#)" by [Guilherme Correia Nunes Pereira](#) (September of 2023 – Now);
- The (on-going) Técnico Lisboa M.Sc. thesis entitled "[Preference-Based Student Team Assignment](#)" by [Paulina Wykowska](#) (September of 2022 – Now);
- The Técnico Lisboa M.Sc. thesis entitled "[Synergistic Companions for Games](#)" by [Pedro José Moreira Bento](#) (September of 2022 – November of 2023);
- The Técnico Lisboa M.Sc. thesis entitled "[Team Formation in Gamified Environments](#)" by [Pedro Alexandre Gonçalves Vilela](#) (September of 2021 – November of 2022);

- The Técnico Lisboa M.Sc. thesis entitled “Personality-Based Reward Sharing In Cooperative Games” by Francisco José da Silva Rosa (September of 2020 – December of 2021).

## Awards

(2015 – 2022)

I earned several awards:

- A Ph.D. grant with Ref. SFRH/BD/143460/2019, issued by Fundação para a Ciência e a Tecnologia;
- Teaching Excellence Diplomas associated to the years 2019/2020 and 2021/2022, issued by Técnico Lisboa;
- An Honorable Mention for the valuable contribution of "Reward-Mediated Individual and Altruistic Behavior," issued by Videogame Sciences and Arts. VJ 2020;
- An Excellence Diploma associated to the M.Sc. degree issued by Técnico Lisboa;
- Merit Diplomas associated to the B.Sc. and M.Sc. degrees, both issued by Técnico Lisboa.

## Professional Service

### Member of the Social Work Group – Técnico PhD Hub



(2022 – Now)

As a member and co-coordinator of the social networking work group of the Técnico PhD Hub, previously named PhD Student Club (April of 2022 – Now), I help in the organization of social gathering events.

This role leverages me to improve my peer interaction skills and relatedness, and helps me to expand my professional network.

### Conference Organization

(2019 – 2022)

I was a publication chair for IVA 2022, and did volunteer work for IVA 2022 and EPIA 2022. I did review work for CoG 2022 (regular papers), CoG 2020 (regular and short papers), AIIDE-20 (regular papers), VJ2019, and ICGI2019.

With these roles, I developed critical skills, and improved my own research skills and knowledge in the process (protégé effect).

### Supervisor and Instructor – TreeTree2



(2019 – 2021)

In the [AfterSchool project by TreeTree2](#) (March of 2021 – April of 2021), I worked as an instructor, teaching the basics of programming to middle school students using Python.

In the [HAC project by TreeTree2](#) (September of 2019 – June of 2020), I supervised and mentored a middle school student, helping him to conceptualize and develop a computer science project of his liking. In this scope, the student developed a snake-style game using the pygame Python library. Similar to the TA work, these roles helped me to improve my coaching skills, and more importantly, they taught me how to adapt instruction and mentoring to younger students.