Julien Soulé

3rd year PhD student working in Multi-Agent Systems for Cyberdefense

Multi-Agent Reinforcement Learning, Multi-Agent Systems, Autonomous Intelligent Cyberdefense Agent, Assisted-Design

julien.soule@univ-grenoble-alpes.fr
+33 6 77 63 12 13
35 Rue Mathieu de la Drôme, 26000 Valence

EDUCATION

Grenoble Alpes University (UGA)

PhD - "On the Organization of a Cyberdefence Multi-Agent System"

JUL 2022 - PRESENT

- ***Laboratoire de Conception Intégration des Systèmes* (LCIS)**
- **Supervisors:** Jean-Paul Jamont (professor, UGA), Michel Occello (professor, UGA), Louis-Marie Traonouez (Thales La Ruche, Land Air Systems), Paul Théron (AICA IWG)
- **Keywords**: Multi-Agent Systems Organizations, Cyberdefense, Multi-Agent Reinforcement Learning, Software Architecture

Ecole de Technologie Supérieur, Montréal (Canada)

One study semester in Computer Engineering

JAN 2019 - MAY 2019

Institut National des Sciences Appliquées (INSA), Rennes

Master's degree in Computer Engineering

2015 - 2020

PROFESSIONAL EXPERIENCE

Thales (La Ruche), Rennes — Research Engineer

DEC 2021 - JUN 2022

- Study on multi-agent aspects and integration within *La Ruche* (*Thales, Land Air Systems*) context in order to explore modeling cyber environments and anomaly detections.

Atos, Toulouse — Software Engineer

AUG 2020 - SEP 2021

- Continuation of *ISIS* project developments with more interactions with the *CNES*.

Atos, Toulouse — Software Engineer Internship

JAN 2020 - JUL 2020

- Worked on development of the *ISIS* project for the *CNES* (*Centre National d'Etude Spatial*).
- Product line to handle launching and monitoring of new satellites from *Control and Command* centers.
- **Tools**: Python / Bash, KVM, Grafana, Django...

SQLI, Toulouse — Mid Software Engineer Internship

MAY 2019 - JUL 2019

- *Airbus Helicopter* projects within different aspects: security, maintenance, development...

ADDITIONAL EXPERIENCES

BattleCode (Sopra Steria), Rennes

Meet several coding challenges in teams

MAR 2017

PROJECTS

MOISE+MARL — Academic Contribution

Created a Proof-Of-Concept framework designed to integrate organizational concepts—such as roles, missions, and goals—into the learning process. By embedding these structures directly into standard MARL algorithms, MOISE+MARL enables more interpretable, efficient coordination among agents, helping them discover and follow well-defined organizational patterns while still adapting to environments.

CybMASDE — Academic/Industrial Contribution

Created a Proof-Of-Concept research platform to develop Cyberdefense Multi-Agent Systems combining Multi-Agent-Reinforcement Learning to assist designers to find a suited organization regarding constraints and goals.

COMMUNICATIONS

International Conferences

- *Soulé, J., Jamont, J.-P., Occello, M., Traonouez, L.-M., & Théron, P. (2025). Streamlining Resilient Kubernetes Autoscaling with Multi-Agent Systems via an Automated Online Design Framework. In Proceedings of the 18th **IEEE International Conference on Cloud Computing** (CLOUD 2025), Helsinki, Finland, July 2025.*
- *Soulé, J., Jamont, J.-P., Occello, M., Traonouez, L.-M., & Théron, P. (2025). An Organizationally-Oriented Approach to Enhancing Explainability and Control in Multi-Agent Reinforcement Learning. In Proceedings of the 24th **International Conference on Autonomous Agents and Multiagent Systems** (AAMAS 2025).*
- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2024). A MARL-based Approach for Easing MAS Organization Engineering. In Proceedings of the 20th **International Conference on Artificial Intelligence Applications and Innovations** (AIAI 2024).*
- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2023). Towards a Multi-Agent Simulation of Cyber-Attackers and Cyber-Defenders Battles. In Proceedings of the **IEEE International Conference on Systems, Man, and Cybernetics** (SMC 2023).*

National Conferences

- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2024). Une approche organisationnelle pour améliorer l'explicabilité et le contrôle dans l'apprentissage par renforcement multi-agent. In Proceedings of the Journées Francophones sur les Systèmes Multi-Agents (JFSMA 2025). (Best paper award)*
- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2024). Une Approche basée sur l'Apprentissage par Renforcement pour l'Ingénierie Organisationnelle d'un SMA. In Proceedings of the Journées Francophones sur les Systèmes Multi-Agents (JFSMA 2024).*
- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2024). Un Outil pour la Conception de SMA par Apprentissage par Renforcement et Modélisation Organisationnelle. In Proceedings of the Journées Francophones sur les Systèmes Multi-Agents (JFSMA 2024).*
- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2023). De l'Organisation des Systèmes Multi-Agents de Cyberdéfense. In Proceedings of the Rencontres des Jeunes Chercheurs en Intelligence Artificielle (RJCIA 2023).*
- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2023). De l'Organisation des Systèmes Multi-Agents de Cyberdéfense. In Proceedings of the Conférence sur la Recherche en Sécurité des Systèmes d'Information (RESSI 2023).*

Poster Presentations

- *Soulé, J., Jamont, J.-P., Occello, M., Théron, P., & Traonouez, L.-M. (2023). De l'Organisation des Systèmes Multi-Agents de Cyberdéfense. Poster presented at Journées Francophones sur les Systèmes Multi-Agents (JFSMA 2023).*

Oral Presentations

- *Talk for the **CybAIR NATO Chair**. École de l'air et de l'espace. MAR 2023*

RESPONSIBILITIES

Treasurer of the Autonomous Intelligent Cyberdefence Agent International Work Group

MAY 2023 - PRESENT

TEACHING EXPERIENCES

Teaching Assistant, Valence (*Engineering school and Technical Institute*)

SEPT 2024 - DEC 2024, JAN 2023 - APR 2023, SEPT 2025 - DEC 2025

- Supervised student teams on industry-driven projects in Cyberdefense
- Tutorials and Labs in Basics of Operating Systems, Systems Programming, and Process Management
- Tutorials and Labs in Basics of system administration

SKILLS

French

- Native

English

- Professional (910 TOEIC)

Japanese

- Basic