Guilhem Fouilhé

PhD candidate in Computer Science & Artificial Intelligence

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Research interests

Conversational explanations in automated planning; language-model behavior and in-context learning; human–AI cooperation. My doctoral research combines symbolic planning, multi-agent language-model interfaces and user studies to investigate how people understand and guide AI-assisted decisions.

Education

PhD in Computer Science — Université de Toulouse 2023–present
IRIT & ANITI. Defence scheduled for 8 December 2026.
Thesis: *Conversational Explainability in Planning and Trustworthy Language Models.*
Supervisors: Philippe Muller and Nicholas Asher. Funded by the EU TUPLES project.

MSc in Computer Science & Mathematics for AI 2021–2023
Université Toulouse III – Paul Sabatier. With honours; valedictorian.
ANITI Graduate School Fellowship in both M1 and M2.

BSc in Mathematics — Université de Montpellier 2017–2021
With honours. Mathematics–Physics double curriculum in the first two years.
Institutional gap year in 2019–2020 for the presidency of AGEM.

Research experience

Doctoral researcher — IRIT & ANITI, Toulouse 2023–present
Conversational interfaces for interactive planning and goal-conflict explanations; empirical studies of factual recall and in-context learning in language models.

Research intern — IRT Saint Exupéry, Toulouse 2023 · 6 months
Influence functions for global explainability of deep neural networks.
Supervisors: David Vigouroux and Agustin Picard.

Research intern — CerCo / CNRS, Toulouse 2022 · 3 months
Mathematical modelling of predictive coding in neural networks.
Supervisors: Grégory Faye and Rufin VanRullen. ANITI-funded internship.

Research intern — Institut de Mathématiques de Toulouse 2021 · 2 months
Asymptotic behavior of nonlocal bistable reaction–diffusion equations.
Supervisors: Grégory Faye and Christophe Besse. CIMI-funded internship.

Research software

IPEXCO. Contributor to the redesign of an interactive planning platform for LLM-based explanations and user studies; Rebecca Eifler is the lead contributor and project owner. Frontend · Backend.
TempEval Visualization. Interactive visualization of temporally annotated text. Online tool.

Publications and communications

Journal articles

1. Grégory Faye, **Guilhem Fouilhé**, Rufin VanRullen. *Mathematical Derivation of Wave Propagation Properties in Hierarchical Neural Networks with Predictive Coding Feedback Dynamics.* Bulletin of Mathematical Biology, 85, article 80, 2023. DOI.

2. Christophe Besse, Alexandre Capel, Grégory Faye, **Guilhem Fouilhé**. *Asymptotic behavior of nonlocal bistable reaction-diffusion equations.* Discrete and Continuous Dynamical Systems – Series B, 28(12), 5967–5997, 2023. DOI.

For both journal articles: exploratory research under supervision, all numerical analyses, and part of the theoretical results.

International conference papers

3. **Guilhem Fouilhé**, Rebecca Eifler, Antonin Poché, Sylvie Thiébaux, Nicholas Asher. *Exploring Plan Space through Conversation: An Agentic Framework for LLM-Mediated Explanations in Planning.* EUMAS 2026, LNAI 16829, 665–686. Springer, 2027 (online 2026). DOI. **Best Paper Award nominee.**

4. Omar Naim, **Guilhem Fouilhé**, Nicholas Asher. *Re-examining Learning Linear Functions in Context.* KI 2025, LNAI 15956, 104–117. Springer, 2026 (online 2025). DOI.
   Co-designed the experimental protocol and led implementation and evaluation; Omar Naim identified the research gap and led manuscript drafting.

International workshop papers

5. **Guilhem Fouilhé**, Nicholas Asher, Philippe Muller. *Memory vs. Context? Influential Factors of Factual Recall in Language Models.* BlackboxNLP at EMNLP 2026, 1029–1046. Association for Computational Linguistics, 2026. Proceedings.

6. **Guilhem Fouilhé**, Rebecca Eifler, Sylvie Thiébaux, Nicholas Asher. *Conversational Goal-Conflict Explanations in Planning via Multi-Agent LLMs.* LM4Plan workshop at AAAI 2025, Philadelphia. Oral presentation; separate from the main AAAI proceedings. OpenReview.

Demonstration

7. Rebecca Eifler, **Guilhem Fouilhé**. *IPEXCO: A Platform for Iterative Planning with Interactive Goal-Conflict Explanations.* XAI 2025, demonstration track. CEUR Workshop Proceedings 4017, 289–296, 2025. Paper.
   Proposed the platform redesign, contributed to development for LLM interaction and user studies, and contributed to writing and the demonstration.

National conference communication

8. **Guilhem Fouilhé**, Niyar Barman, Omar Naim, Krish Sharma, Soumadeep Saha, Alejandro Estana, Nicholas Asher. *Scaling a New Attention Scoring Function: A Feedback on Pretraining a 1B Model Efficiently.* JCAD 2026, Nantes, October 2026. Oral communication. Abstract.

Teaching

Université Toulouse III – Paul Sabatier / Université de Toulouse and UPSSITECH. **104 contact hours** in 2023–2026 (100.17 equivalent tutorial hours, following university service records). Teaching used materials supplied by course teams.

Master's and engineering courses

- **Advanced Algorithms · M1 Computer Science · 2025–2026 · 10h labs.** Linear programming and metaheuristics in Python; PySCIPOpt.
- **Machine Learning 1 · M1 · 2024–2025 · 2h labs.** Recurrent neural networks in NumPy and recurrent language modelling.
- **Advanced Programming · 2nd-year engineering · 2024–2025 · 8h labs.** Python data structures, object-oriented programming, graphs and scientific computing.
- **AI: Machine Learning and Deep Learning · 2nd-year engineering · 2023–2024 · 8h labs.** Reinforcement learning and deep learning; marking practical assignments.

Undergraduate courses

- **Object-Oriented Programming · L3 SID · 2023–2024 · 14h lectures/tutorials.** Java classes, inheritance and composition; written-examination assessment.
- **Data Structures · L3 SID · 2023–2025 · 20h labs.** C, pointers, dynamic memory, linked lists, queues and trees; marking practical assignments.
- **Algorithms 2 · Licence Flex (L1–L3) · 2024–2026 · 24h labs.** Programs and correctness proofs in Why3/MicroPython; supervision and assessment.
- **Databases · Licence Flex (L1–L3) · 2025–2026 · 10h labs.** Entity–relationship modelling, relational databases and SQL with Oracle.
- **AI · L3 Computer Science / L2 CUPGE · 2023–2024 · 4h labs.** Interactive exploration of density, variance and normality (L3); uninformed state-space search (L2).
- **Mathematics · L1 / L2 · 2023–2024 · 4h tutorials.** Reasoning, induction, logic and quantifiers (L1); numerical series and series of functions (L2).

Online education. Co-author of *Identifier les possibilités d'utilisation des IA génératives textuelles*, for L'Université Numérique: explaining how ChatGPT and related models work. Module.

Academic service and selected talks

- **2026:** Session chair, Engineering Multi-Agent Systems, EUMAS.
- **2025:** Scientific evaluator, Airbus Beluga AI Challenge, Explainability Track.
- **2024–2026:** PhD and postdoctoral representative, ANITI; seminars, workshops and community events.
- **Conference talks, 2026:** JCAD, Nantes (October); EUMAS (September).
- **Workshop talk, 2025:** LM4Plan at AAAI, Philadelphia (February–March).
- **Invited talks, 2025:** IRT Saint Exupéry (March); LAAS-CNRS (February).

Leadership and university service

President, AGEM (2019–2020). Led a 15-person team in the Montpellier student federation; organized a municipal-election debate involving 11 of 14 candidates.
Elected student representative: University education council, Montpellier (2019–2021); Faculty of Sciences council (2018–2021); CROUS Montpellier-Occitanie board (2020–2021).

Technical skills and languages

Research tools: Python, C/C++, Java, SQL; PyTorch, Hugging Face, scikit-learn, vLLM; Git, Docker, Linux and LaTeX.
Languages: French (native); English (fluent, C2).