



# Fanny Jourdan

I'm researcher at [IRT Saint Exupery](#) (Technological Research Institut) for the [DEEL](#) team. I am interested in Explainability, Interpretability and Logic for Natural Language Processing algorithms.

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## EDUCATION

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PhD on Computer Science at <b>Paul Sabatier University</b> <i>"Advancing Fairness in Natural Language Processing: From Traditional Methods to Explainability"</i> <i>Supervisors: Nicholas Asher and Laurent Risser</i>	2021 - 2024 Toulouse, France
Master's Degree on Economics at <b>Paris Dauphine University</b> <i>Digital economics, management, innovation, regulation theory</i>	2020 - 2021 Paris, France
Master's Degree on Mathematics at <b>École polytechnique</b> <i>Data Sciences, Statistical theory, Natural Language Processing, Optimisation, Causal Inference</i>	2018 - 2020 Paris, France
Bachelor's Degree on Mathematics at <b>Paris-Sud University</b> <i>Fundamental mathematics: Algebra, Topology, Calculus</i> <i>Holomorphic function, Probability</i>	2015 - 2018 Paris, France

## WORK EXPERIENCE

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<b>Researcher at <a href="#">IRT Saint Exupery</a></b> <i>Explainability (XAI) and logic for Natural Language Processing algorithms.</i>	March 2024 - Today Toulouse, France
<b>Research intern at <a href="#">Criteo AI Lab</a></b> <i>Study of the causal effect of displays (advertising banners sent by Criteo) on the sales of associated products.</i>	May 2020 - September 2020 Paris, France
<b>Data scientist intern at <a href="#">EDF R&amp;D</a></b> <i>Analysis and disaggregation of individual electrical consumption time series.</i>	April 2019 - August 2019 Paris, France

## PUBLICATIONS

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- Fanny Jourdan**, Louis Bethune, Agustin Picard, Laurent Risser, Nicholas Asher, "TaCo: Targeted Concept Removal in Output Embeddings for NLP via Information Theory and Explainability" preprint.
- Fanny Jourdan**, Agustin Picard, Thomas Fel, Laurent Risser, Jean-Michel Loubes, Nicholas Asher, "COCKATIEL: COntinuous Concept ranKed ATtribution with Interpretable ELEments for explaining neural net classifiers on NLP tasks" to appear in Proceedings of *the Findings of the Association*

for *Computational Linguistics (ACL 2023)*, Toronto, Canada, 2023, ACL.

3. **Fanny Jourdan**, Laurent Risser, Jean-Michel Loubes, Nicholas Asher, "Are fairness metric scores enough to assess discrimination biases in machine learning?" to appear in *Proceedings of Third Workshop on Trustworthy Natural Language Processing (TrustNLP ACL2023)*, Toronto, Canada, 2023, ACL.
4. **Fanny Jourdan**, Titon Tshiongo Kaninku, Nicholas Asher, Jean-Michel Loubes, Laurent Risser, "How Optimal Transport Can Tackle Gender Biases in Multi-Class Neural Network Classifiers for Job Recommendations" in *Algorithms*, 16.3, p. 174

## TEACHING

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Teaching assistant at Paul Sabatier University <i>Mathematics for Undergraduate students on Biology Bachelor</i>	2021 - 2023 Toulouse, France
Teaching assistant at Paul Sabatier University <i>Logic for Undergraduate students on Computer Science Bachelor</i>	2021 - 2022 Toulouse, France
Oral examiner at Parc de Vilgenis High School <i>"Colles" on mathematics for Undergraduate students in "Higher school preparatory classes"</i>	2018 - 2020 Massy, France

## TALKS AND POSTERS PRESENTATIONS

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NLP group, MILA - Invited talk <i>Unsupervised concept based XAI for NLP</i>	June 10, 2024 Montréal, Canada
MobiliT.AI - Oral <i>TaCo: Targeted Concept Removal in Output Embeddings for NLP via Information Theory and Explainability</i>	May 29, 2024 Montréal, Canada
IA Pau Festival - Keynote Speaker <i>Understanding and reducing discriminative biases in Natural Language Processing algorithms.</i>	December 1, 2023 Pau, France
NLTP group, Utrecht university - Invited speaker <i>COCKATIEL: COntinuous Concept ranKed ATtribution with Interpretable ELEments for explaining neural net classifiers on NLP tasks</i>	October 16, 2023 Utrecht, Netherlands
TrustNLP Workshop ACL - Oral <i>Are fairness metric scores enough to assess discrimination biases in machine learning?</i>	July 14, 2023 Toronto, Canada
TrustNLP Workshop ACL - Poster session (2 posters) - <i>Are fairness metric scores enough to assess discrimination biases in machine learning?</i> - <i>COCKATIEL: COntinuous Concept ranKed ATtribution with Interpretable ELEments for explaining neural net classifiers on NLP tasks</i>	July 14, 2023 Toronto, Canada

ACL - Findings spotlight <i>COCKATIEL: Continuous Concept ranKed ATtribution with Interpretable ELeMents for explaining neural net classifiers on NLP tasks</i>	July 9, 2023 Toronto, Canada
European Workshop on Algorithmic Fairness - 2 Spotlights - <i>Are fairness metric scores enough to assess discrimination biases in machine learning?</i> - <i>How Optimal Transport Can Tackle Gender Biases in Multi-Class Neural Network Classifiers for Job Recommendation</i>	June 7-9, 2023 Zurich, Switzerland
MobiliT.AI - Poster session <i>COCKATIEL: Continuous Concept ranKed ATtribution with Interpretable ELeMents for explaining neural net classifiers on NLP tasks</i>	May 30-31, 2023 Toulouse, France
3IA Doctoral workshop - Talk <i>Bias in Natural Language Processing</i>	November 22-23, 2021 Toulouse, France
"Journée du GDR TAL 2021" - Talk <i>Bias in Natural Language Processing</i>	October 5, 2021 Toulouse, France

## BROADER PUBLIC SCIENTIFIC COMMUNICATION

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- Interview for [Fisheye Immersive](#), April 12, 2024.
- Finalist of [MT180](#) contest (french version of [3MT](#)) - see the [video](#), March 15, 2024.
- Interview for "Mardi quiz" at [Quai des Savoirs Toulouse](#), March 5, 2024.
- Interview for [ActuIA](#), December 11, 2023.
- Interview for [Toulouse University Press Service](#), February 9, 2023.
- Participated as a guest in the online roundtable discussion: [Reducing Bias and Inequality: Can AI Play a Role?](#), March 22, 2022.
- Participated as a guest in the roundtable discussion [Women in AI](#), March 8, 2022.

## EXTRACURRICULAR EXPERIENCES

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PhD student representative at <a href="#">ANITI Diversity Commission</a> <i>The commission initiates and launches actions to combat prejudice about AI and to fight against gender stereotypes.</i>	2021 - Today Toulouse, France
Cofounder and treasurer at <b>AlumnIA association</b> <i>Creation and management of the budget of the association of alumni of the Data Science master at École polytechnique Paris.</i>	2020 - 2023 Paris, France
Volunteer at <a href="#">Femmes &amp; Mathématiques association</a> <i>Organization of "Filles &amp; maths : une équation lumineuse" events to help high school girls discover the trades related to mathematics and not undermine their ambitions.</i>	2018 - 2019 Paris, France

# OTHER SKILLS

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**Languages:**

French - *Native*  
English - *Professional working*  
Spanish - *Elementary*

**Programming Languages:**

Python (working with PyTorch, TensorFlow, Transformers), R, SQL, L<sup>A</sup>T<sub>E</sub>X.