Juan Luis Gastaldi

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Employment History

Apr 2023-Present	**Institute of Machine Learning (IML), D-INFK, ETH Zurich.** Wissenschaftliche Mitarbeiter.
Oct 2019-Mar 2023	**Chair of History and Philosophy of Mathematical Sciences, D-GESS, ETH Zurich.** Marie Skłodowska-Curie Fellow (H2020).
Oct 2019-Dec 2022	**Turing Centre, ETH Zurich.** Managing Director.
Oct 2012-Sep 2023	**Fine Arts Academy of Montpellier (MO.CO.ESBA.)** Senior Lecturer in Philosophy and History of Ideas. Full-time, tenured. On leave since 2019.
Jan 2018-Sep 2019	**SPHERE, UMR 7219, CNRS-Paris Cité University.** Associate Researcher (non-stipendiary).
Nov 2016-Sep 2017	**Chair of History and Philosophy of Mathematical Sciences, D-GESS, ETH Zurich.** Postdoctoral Researcher. Advisor: Prof. Roy Wagner.
Mar 2016-Oct 2016	**SPHERE, UMR 7219, CNRS-Paris Cité University.** Associate Researcher (non-stipendiary).
Oct 2007-Sep 2014	**SPH, EA 4574, Bordeaux Montaigne University.** Doctoral Researcher.

Education and Qualifications

Ongoing	**PhD in Computer Science, ETH Zurich.** Dissertation title: "From Distribution to Structure: Tokenization in Computational Language Modeling". Supervisors: Ryan Cotterell and John Terilla.
2019	**External Competition Based on Qualifications with Exam (French CNFPT).** For the position of "Professor of Artistic Education" in "Philosophy of Art and Aesthetics".
2016	**Qualification by the French National University Council (CNU).** Section 17 "Philosophy". Renewed in 2020 and 2025.
2015	**Qualification by the French National University Council (CNU).** Section 72 "Epistemology, History of Sciences and Techniques". Renewed in 2019 and 2024.
2014	**PhD in Philosophy, University of Bordeaux Montaigne.** Dissertation title: "Une archéologie de la logique du sens. Arithmétique et contenu dans le processus de mathématisation de la logique au XIXe siècle". Supervisors: Jean-Michel Salanskis and Charles Ramond. *Summa cum laude.*
2007	**Master [MA] in Philosophy, University of Paris 1 Panthéon-Sorbonne.**
2005-2008	**École Normale Supérieure (ENS) Paris (SI 2004).** Major: Philosophy; Minor: Mathematics.
2007-2011	**Licence [BSc] in Mathematics (L1-L2), University of Paris 6 Pierre et Marie Curie.** First 2 of a total of 3 years.
2004	**Licenciatura [BA+MA] in Political Sciences, Rosario National Univ. (UNR, Argentina).**

Languages

Spanish: Native; **French, English**: Near native (speaking, reading, writing); **German, Italian, Portuguese**: Good working knowledge (reading and oral understanding)

Distinctions, Awards, Fellowships

2025	Ranked first by the French National Scientific Research Center (CNRS) for a full-time tenured research position in the interdisciplinary section "Sciences en société" (CID 53). The appointment was rejected without motive by the Admission (non-scientific) Committee.
2022	Fellow of the Academic Exchange Program "Knowledge in Society" (ETH Zurich/Cohn Institute for the Hist. and Phil. of Sc. and Ideas, Tel Aviv University).
2021	SNF Scientific Exchanges Grant.
2019-2021	Marie Skłodowska-Curie Individual Fellowship, H2020-MSCA-IF-2018.
2011-2012	Research Fellow at the Akademie Schloss Solitude, Stuttgart, Germany.
2007-2011	Doctoral Fellowship "LNS", Bordeaux Montaigne University, France.
2005-2007	Masters Fellowship "Saint-Exupéry", French Government and Argentinian Government.
2005	"Leaders" Scholarships (for students with the top academic records in Latin America). Carolina Foundation, Spain.
2004	"Best Average Grade" distinction. National University of Rosario, Argentina.
2003	Scholarship "Outstanding Student". Acindar Foundation, Argentina.

Publications List

Doctoral Dissertation

[1] J. L. Gastaldi. "**Une archéologie de la logique du sens : arithmétique et contenu dans le processus de mathématisation de la logique au XIXe siècle**". Ph.D. Dissertation. Université Michel de Montaigne - Bordeaux III, Sept. 2014.

Publications in Peer-Reviewed Scientific Journals

[2] J. L. Gastaldi, J. Terilla, L. Malagutti, B. DuSell, T. Vieira, and R. Cotterell. "**The Foundations of Tokenization: Statistical and Computational Concerns**". In: *The Thirteenth International Conference on Learning Representations (ICLR)*. 2025.

[3] T. Vieira, B. LeBrun, M. Giulianelli, J. L. Gastaldi, B. DuSell, J. Terilla, T. J. O'Donnell, and R. Cotterell. "**From Language Models over Tokens to Language Models over Characters**". In: *Forty-second International Conference on Machine Learning (ICML)*. 2025.

[4] T. Vieira, T. Liu, C. Pasti, Y. Emara, B. DuSell, B. LeBrun, M. Giulianelli, J. L. Gastaldi, J. Terilla, T. J. O'Donnell, and R. Cotterell. "**Language Models over Canonical Byte-Pair Encodings**". In: *Forty-second International Conference on Machine Learning (ICML)*. 2025.

[5] M. Giulianelli, L. Malagutti, J. L. Gastaldi, B. DuSell, T. Vieira, and R. Cotterell. "**On the Proper Treatment of Tokenization in Psycholinguistics**". In: *Proceedings of the 2024 Conference on Empirical Methods in Natural Language Processing (EMNLP)*. Ed. by Y. Al-Onaizan, M. Bansal, and Y.-N. Chen. Miami, Florida, USA: Association for Computational Linguistics, Nov. 2024, pp. 18556–18572. DOI: 10.18653/v1/2024.emnlp-main.1032.

[6] J. L. Gastaldi. "**Computing Cultures: Historical and Philosophical Perspectives**". In: *Minds and Machines* 34.1 (2024), pp. 1–10. ISSN: 1572-8641. DOI: 10.1007/s11023-023-09653-x.

[7] T.-D. Bradley, J. L. Gastaldi, and J. Terilla. "**The structure of meaning in language: parallel narratives in linear algebra and category theory**". In: *Notices of the American Mathematical Society (AMS)* (Feb. 2024). ISSN: 1088-9477.

[8] V. Zouhar, C. Meister, J. L. Gastaldi, L. Du, M. Sachan, and R. Cotterell. "**Tokenization and the Noiseless Channel**". In: *Proceedings of the 61st Annual Meeting of the Association for Computational Linguistics (ACL) (Volume 1: Long Papers)*. Toronto, Canada: Association for Computational Linguistics, July 2023, pp. 5184–5207. DOI: 10.18653/v1/2023.acl-long.284.

[9] V. Zouhar, C. Meister, J. L. Gastaldi, L. Du, T. Vieira, M. Sachan, and R. Cotterell. "**A Formal Perspective on Byte-Pair Encoding**". In: *Findings of the Association for Computational Linguistics: ACL 2023*. Toronto, Canada: Association for Computational Linguistics, July 2023, pp. 598–614. DOI: 10.18653/v1/2023.findings-acl.38.

[10] J. L. Gastaldi. "**Why Can Computers Understand Natural Language?**" In: *Philosophy & Technology* 34.1 (2021), pp. 149–214. ISSN: 2210-5441. DOI: 10.1007/s13347-020-00393-9.

[11] J. L. Gastaldi and L. Pellissier. "**The Calculus of Language: Explicit Representation of Emergent Linguistic Structure Through Type-Theoretical Paradigms**". In: *Interdisciplinary Science Reviews* 46.4 (2021), pp. 569–590. DOI: 10.1080/03080188.2021.1890484.

[12] J. L. Gastaldi. "**Frege's Habilitationsschrift: Magnitude, Number and the Problems of Computability**". In: *History and Philosophy of Computing*. 2016, pp. 168–185. DOI: 10.1007/978-3-319-47286-7_12.

[13] J. L. Gastaldi. "**Par-delà métaphore et littéralité. Le statut des mathématiques dans l'œuvre de Deleuze**". In: *Implications Philosophiques* (2016).

[14] J. L. Gastaldi. "**Frege's Habilitationsschrift and the Functional Approach to Magnitudes**". In: *Preliminary proceedings of the Third international conference on the history and philosophy of computing (HaPoC 2015) : 8-11 Oct. 2015, Pisa (Italy*. Ed. by F. Gadducci. Pisa: Pisa University Press, 2015. ISBN: 9788867415762.

[15] J. L. Gastaldi. "**La politique avant l'être. Deleuze, ontologie et politique**". In: *Cités* 40 (2009), pp. 59–73. ISSN: 12995495, 19696876.

Contributions to Books

[16] J. L. Gastaldi. "**De Morgan's De Morgan's Laws Duality in the Emergence of Formal Logic**". In: *Duality in 19th and 20th Century Mathematical Thinking*. Ed. by R. Krömer and E. Haffner. Cham: Springer Nature Switzerland, 2024, pp. 61–99. ISBN: 978-3-031-59797-8. DOI: 10.1007/978-3-031-59797-8_3.

[17] J. L. Gastaldi. "**How to Do Maths with Words: Neural Machine Learning Applications to Mathematics and Their Philosophical Significance**". In: *Handbook of the History and Philosophy of Mathematical Practice*. Ed. by B. Sriraman. Cham: Springer International Publishing, 2024, pp. 3191–3226. ISBN: 978-3-031-40846-5. DOI: 10.1007/978-3-031-40846-5_142.

[18] J. L. Gastaldi. "**Introduction to the Semiology of Mathematical Practice**". In: *Handbook of the History and Philosophy of Mathematical Practice*. Ed. by B. Sriraman. Cham: Springer International Publishing, 2024, pp. 2955–2970. ISBN: 978-3-031-40846-5. DOI: 10.1007/978-3-031-40846-5_130.

[19] J. L. Gastaldi, R. Moot, and C. Rétoré. "**Le contexte en traitement automatique des langues**". In: *Le contexte en question*. Ed. by G. Hassler. Iste, 2024. ISBN: 9781836120032.

[20] J. L. Gastaldi. "**Boole's Untruth Tables: The Formal Conditions of Meaning Before the Emergence of Propositional Logic**". In: *Logic in Question: Talks from the Annual Sorbonne Logic Workshop (2011- 2019)*. Ed. by J.-Y. Béziau, J.-P. Desclés, A. Moktefi, and A. C. Pascu. Cham: Springer International Publishing, 2022, pp. 119–149. ISBN: 978-3-030-94452-0. DOI: 10.1007/978-3-030-94452-0_7.

[21] J. L. Gastaldi. "**L'archéologie à l'épreuve des savoirs formels. Mathématiques et formalisation dans le projet d'une archéologie des savoirs**". In: *L'épistémologie historique. Histoire et méthodes*. Ed. by J.-F. Braunstein, I. M. Diez, and M. Vagelli. Éditions de la Sorbonne, 2019.

[22] J. L. Gastaldi. "**Le sens d'une Logique du Sens: Deleuze, Frege et le rendez-vous manqué**". In: *Gilles Deleuze: Politiques de la Philosophie*. Ed. by A. Jdey. Métis Press, 2015, pp. 205–227.

[23] J. L. Gastaldi. "**L'esthétique au sein des mots: Discours, figure, ou le renouvellement du projet critique**". In: *Le Moment philosophique des années 1960 en France*. Ed. by P. Maniglier. Presses Universitaires de France, 2011, pp. 537–556.

[24] J. L. Gastaldi. "**Qu'est-ce qu'une figure? Lyotard et le problème du fondement d'une théorie de l'expression**". fre. In: *Lyotard à Nanterre*. Ed. by C. Pagès. Continents philosophiques. Paris: Klincksieck, 2010. ISBN: 978-2-252-03774-4.

Edited Collections and Special Issues

[25] "**Computing Cultures: Historical and Philosophical Perspectives**". In: *Minds and Machines* 34.1 (2024). Ed. by J. L. Gastaldi and L. Pellissier. Special Issue. ISSN: 1572-8641.

[26] J. L. Gastaldi, ed. "**Section: Semiology of Mathematical Practice**". In: *Handbook of the History and Philosophy of Mathematical Practice*. Ed. by B. Sriraman. Cham: Springer International Publishing, 2024, pp. 2955–3226. ISBN: 978-3-031-40845-8. DOI: 10.1007/978-3-031-40846-5.

Preprints

[27] J. L. Gastaldi and L. Pellissier. "**The Logic of Language: from the Distributional to the Structuralist Hypothesis through Types and Interaction**". hal-03064480. Working paper or preprint. Dec. 2020.

Under Review

[r1] J. L. Gastaldi. **"Content from Expressions: The Place of Textuality in Deep Learning Approaches to Mathematics."** Under review at *Synthèse* (accepted with modifications).

In Progress

[p1] **Logical-geometric structures in R-enriched adjunctions**. With Samantha Jarvis, Luc Pellissier, Thomas Seiller, and John Terilla. To be submitted to *Inventiones Mathematicae*. Draft accessible here.

[p2] **The Epistemology of Large Language Models from the Perspective of the Philosophy of Computer Science**. Invited chapter for the *Oxford Handbook of the Philosophy of Computer Science* (Editors: Ray Turner, Nicola Angius, and Henri Stephanou).

[p3] **Toward a Critical Formalism**. Invited contribution for the themed issue "The New Geometry of Language: AI Models in Critical Perspective" of the *Cambridge Forum on AI: Culture and Society* (Editors: Matteo Pasquinelli, Amira Moeding, Tommaso Guariento).

[p4] **Reasoning, Inference and Implication in LLMs**. With Bertram Højer, Thomas Seiller, and Anna Rogers. To be submitted to *ACL*.

[p5] **Geometric Structuralist Typing of Language Data. The Boolean Case**. With Nathanaël Girod, Thomas Seiller, and John Terilla. To be submitted to *ICML*.

[p6] **Realizability through Abstract Machines: The Dynamics of Interaction in Proof Theory**. With Luc Pellissier and Adrien Dürst. To be submitted to the *Journal of the ACM*.

Outreach Publications

[28] J. L. Gastaldi and B. Serra. "***Swipe*, ou l'écriture tout court.**" In: *Formules* 22 (2020).

[29] J. L. Gastaldi. "**La Ville Lumière**". In: *Atlas Solitude*. Ed. by S. Editions. Solitude Editions, 2015. Chap. Akademie Schloss Solitude, pp. 199–203.

[30] J. L. Gastaldi. *Superpositions*. Texte pour l'exposition de Michaël Sellam: "des choses, de l'espace", Galerie Vasistas. 2014.

[31] J. L. Gastaldi. "**Bérénice Serra: AD64**". In: *Infra* 7 (2013).

[32] J. L. Gastaldi. "**Ouverture**". In: *Quinze ans d'art à HEC*. Espace d'art contemporain HEC, 2013, pp. 102–105.

[33] J. L. Gastaldi and D. Alvaro. "**Spanish translation of: Jean-Luc Nancy, "Les différences parallèles (Deleuze & Derrida)"**". In: *Por amor a Derrida*. Ed. by M. Cragnolini. La Cebra, 2008, pp. 249–262.

[34] J. L. Gastaldi. "**De l' "intéressant" dans l'art**". In: *L'exposition des idées*. E.N.S./Villa Arson, 2007.

[35] J. L. Gastaldi and S. Lorenzi. "**Rencontre**". In: *L'exposition des idées*. E.N.S./Villa Arson, 2007.

Research Activities

Direction of Research Projects

2019-2022 **SemioMaths: Towards a theory of mathematical signs based on the automatic treatment of mathematical corpora.** (191.1K€)
HPM Chair (ETH Zurich), Turing Centre (ETH Zurich), SPHERE Laboratory (Université Paris Cité). Principal Researcher: Juan Luis Gastaldi. Project funded by Marie Skłodowska-Curie Actions (Individual Fellowship) in the framework of the EU programme Horizon 2020. Call H2020-MSCA-IF-2018. Grant Agreement No 839730.

2019-2020 **SemioLog: Segmentation and Typing by orthogonality for the automatic treatment of mathematical language.** (1.2K€)
SPHERE (Université Paris Cité), IRIF (Université Paris Cité). Principal Investigators: Juan Luis Gastaldi and Luc Pellissier. Seed funding by the Institut Humanités, Sciences, Sociétés of the Université Paris Cité.

2015-2019 **COSA: COnnexion Science & Art.**
MO.CO.ESBA, Institute of Electronics and Systems (University of Montpellier – CNRS), Institute Charles Gerhardt of Montpellier (University of Montpellier – CNRS), ENSAM (National School of Architecture of Montpellier). Research Managers: Juan Luis Gastaldi and Bruno Alonso.

2013-2017 **Choses de prix: Métaphysique comparée de l'objet d'art et de la marchandise.** (50K€)
University of Paris Ouest Nanterre, University of Paris 8, PSE, MediaLab Science Po, Quai Branly Museum and ESBA-MoCo. Research Managers: P. Maniglier, C. Perret, P.-Y. Geoffard, B. Latour, F. Keck and J. L. Gastaldi. Research program funded by the University Paris Lumières and the Carasso Foundation.

2012-2013 **Formal Mediums: Arts&Mathematics Platform.** (4K€)
Research Platform in art and mathematics, associating artists and theoreticians of the Akademie Schloss Solitude. Project Coordinators: Juan Luis Gastaldi and Mladen Alexiev. Project funded by the Akademie Schloss Solitude.

Research Visits

2026 **The Graduate Center, City University of New York (CUNY)** (New York, USA)
Host: Prof. John Terilla. Jan-Feb.

2024 **Institut de Hautes Études Scientifiques (IHES)** (Paris-Saclay, France)
Host: Prof. John Terilla. Nov.

2024 **The Graduate Center, City University of New York (CUNY)** (New York, USA)
Host: Prof. John Terilla. Sept.

2023 **Institut de Hautes Études Scientifiques (IHES)** (Paris-Saclay, France)
Host: Yannis Vlassopoulos. Nov.

2023 **Cohn Institute for the History and Philosophy of Science** (Tel Aviv, Israel)
Fellow of the Exchange Program "Knowledge in Society". April-May.

2022-2023 **Hoskinson Center for Formal Mathematics, Carnegie Mellon University** (Pittsburgh, USA)
Host: Prof. Jeremy Avigad. Nov 22-Feb 23.

2022-2023 **The Graduate Center, City University of New York (CUNY)** (New York, USA)
Host: Prof. John Terilla. Aug 22-Feb 23.

2017 **Institute of Philosophy, Czech Academy of Science.** (Prague, Czechia)
Host: Prof. Ladislav Kvasz. Oct-Dec.

Organisation of Scientific Events

Organization of International Conferences

2021 **HaPoC-6 (History and Philosophy of Computing).** ETH Zurich, Turing Centre Zurich.
Chairs: Juan Luis Gastaldi and Luc Pellissier (on behalf of the HaPoC Council).

Organization of Seminars

2019-2022	**Seminar "Images".** Turing Centre Zurich (ETH Zurich).
2019-2021	**Seminar and Workgroup "SemioLog".** SPHERE (Université Paris Cité) and LACL (Paris Créteil). Coordinators: Juan Luis Gastaldi and Luc Pellissier.
2016-2019	**Seminar "Semiomaths".** SPHERE (CNRS, Université Paris Cité). Organizers: J. L. Gastaldi, P. Maniglier and D. Rabouin. Person in charge: J. L. Gastaldi.
2015-2016	**Seminar "Mathématiques 19e-20e, histoire et philosophie".** SPHERE (Université Paris Cité). Organizers: S. Decaens, D. Waszek, P. Bertin and J. L. Gastaldi.
2011-2013	**Seminar "Formalisme(s): la philosophie française et les sciences formelles".** CIEPFC (ENS Paris). Organizers: J. L. Gastaldi and T. Tho.
2012	**"Formal Seminar".** Research seminar about formalism in art, philosophy and sciences. Akademie Schloss Solitude, Stuttgart, Germany.

Organization of Lectures and Workshops

2022	**TDPhiMath3: Philosophical and Linguistic Approaches to Computational Mathematics** ETH Zurich, University of Duisburg-Essen. Organizers: Bernhard Fisseni, Juan Luis Gastaldi, Deborah Kant, Deniz Sarikaya and Bernhard Schröder.
2021	**IC2S2 Satellite Event: Artificial Emotional Intelligence: Can and Should Emotions Be Computed?** ETH Zurich, Turing Centre. Organizers: Juan Luis Gastaldi, Samuel Hunziker, Edith Schmid and Jennifer Scurrell.
2021	**The Development of 19th Century Geometrical Knowledge: Projective Geometry, Duality, Reflection and Inversion** ETH Zurich, Turing Centre & Zentrum Geschichte des Wissens. Organizers: Juan Luis Gastaldi et Idit Chikurel
2019	**Lecture series "Around digital humanities and their uses in the history and philosophy of science".** SPHERE (Université Paris Cité). Organizers: Juan Luis Gastaldi, Emmylou Haffner et Edgar Lejeune.
2018	**"Semiomaths" First International Workshop.** ETH Zurich. Person in charge: J. L. Gastaldi. Organizers: Chair HPM (D-GESS ETHZ), Turing Centre Zurich, SPHERE (Univ. Paris Cité).
2016	**Workshop "Poetry and Computing".** MO.CO.ESBA - hTh, Montpellier, France.
2010	**Workshop "Theory of Expression and Aesthetics".** LNS Laboratory (EA 4201), Bordeaux Montaigne University. Organizers: J. L. Gastaldi and Julia Peker.
2009	**Workshop "Deleuze and Philosophy".** UNR, Rosario, Argentina. Organizers: J. L. Gastaldi and Prof. Navarro.

Teaching Experience

(U: Undergraduate; G: Graduate; P: Postgraduate)

2019-Present	**ETH Zurich (D-GESS, D-INFK): Lecturer.** (U, G, P)
	"Philosophy of Language and Computation I" (AS2022,SS2024,SS2026) (with Prof. R. Cotterell)
	"Philosophy of Language and Computation II" (SS2023,SS2025) (with Prof. R. Cotterell)
	"Images of Computing" (AS2022)
	"Around 1936: The New Language of Science" (SS2022)
	"Images of the Human" (AS2021)
	"History of Formal Logic: The Emergence of Boolean Logic" (SS2021)
	"Rebooting AI: Human and social aspects of AI" (SS2021) (with Dr. O. Del Fabbro, Dr. A. Nardo, Dr. V. Rampton and Dr. D. Trninic)
	"Images of Language" (AS2020)
	"The Birth of Formal Sciences: History and Philosophy of the Relation Between Logic and Mathematics"(SS2020).
2023	**ETH Zurich (D-INFK): Teaching Assistant.** (U, G)
	"Natural Language Processing" (AS2023) (Prof. R. Cotterell);
2018-2020	**CentraleSupélec Engineering School: Short-term Lecturer.** (U)
	"Computing Culture: Social Sciences in the Face of AI" (AS2020)

"Historical, Philosophical and Ethical Perspectives on AI and Data Sciences" (AS2018) (with B. Duchemann and N. Brault).

2012-2019   **MO.CO.ESBA: Senior Lecturer.** (U, G)

"Form(s) and Formalism(s)" (2018)

"Philosophy of the Digital" (2012, 2015)

"Contemporary Philosophy and Aesthetics" (2012, 2013)

"Problems in Modern and Contemporary Aesthetics" (2013, 2014)

"The Language" (2014)

"The Space" (2014)

"Philosophies of the Image" (2015, 2016)

"Reflections on the End of Postmodernity" (2016, 2017)

2017   **Czech Academy of Science (Institute of Philosophy): Visiting Professor.** (G, P)

"Sociology of Science and Scientific Knowledge" (AS2017) (with J. Maršálek).

2010-2011   **National University of Rosario (UNR), Argentina (Department of Philosophy): Invited Lecturer.** (G, P)

"The Sense of a Logic of Sense" (AS2011)

"Gilles Deleuze: Philosophy, Logic and Mathematics" (AS2010).

2004-2005   **UNR, Argentina (Department of Political Sciences): Teaching Assistant.** (U)

"Epistemology of Social Sciences" (AS2004-AS2005)

"Political Theory II" (AS/SS2004-AS/SS2005)

1999-2004   **UNR, Argentina (Department of Political Sciences, Department of Economics): Teaching Assistant.** (U)

"Introduction to Social Sciences" (AS/SS 2001-2004)

"Political Theory II" (AS/SS 2000-2004)

"Sociology" (AS/SS 1999-2004)

Supervising Activities

2019-Present   **ETH Zurich (D-GESS/D-INFK).** Supervision and Co-supervision of Bachelor, Master, and PhD students in Philosophy and Computer Science.

2012-2019   **MO.CO.ESBA.** Supervision of Bachelor and Master students (more than 50 Master thesis supervised).

Academic Responsibilities

2021-Present   **HaPoC Council.** President (until 2023), Vicepresident (since 2023).

2019-2022   **Turing Centre Zurich, ETH Zurich.** Managing Director.

2012-2016   **MO.CO.ESBA.** Head of the Research Department.

Service to the Academic Community

Reviewer for several funding agencies and scientific journals in SHS and CS (Horizon Europe, Nature Scientific Reviews, Philosophy & Technology, Humanities and Social Sciences Comm., ACL, ICLR, IWCS, etc.)

PC Member for various scientific conferences (HaPoC, CiE, XAI4, CLMPST, etc.)

Professional Memberships

2020-Present   **Association for the Philosophy of Mathematical Practice (APMP).** Member.

2017-Present   **Commission for the History and Philosophy of Computing (HaPoC).** Member.

2016-Present   **Research Network on the History and the Methods of Historical Epistemology.** Member.

Conferences, Lectures, and Invited Talks

International Conference Papers (selection)

2025   **From Language Models over Tokens to Language Models over Characters.** ICML 2025, Vancouver, Canada. With T. Vieira, B. LeBrun, M. Giulianelli, B. DuSell, J. Terilla, T. J. O'Donnell, and R. Cotterell. July.

2025   **Language Models over Canonical Byte-Pair Encodings.** ICML 2025, Vancouver, Canada. With T. Vieira, T. Liu, C. Pasti, Y. Emara, B. DuSell, B. LeBrun, M. Giulianelli, T. J. O'Donnell, and R. Cotterell. July.

2025   **The Foundations of Tokenization.** ICLR 2025, Singapore. With J. Terilla, L. Malagutti, B. DuSell, T. Vieira, and R. Cotterell. April.

2024   **On the Proper Treatment of Tokenization in Psycholinguistics.** EMNLP 24, Miami, USA. With M. Giulianelli, L. Malagutti, B. DuSell, T. Vieira, and R. Cotterell. Nov.

2023   **The Language of Mathematics: Epistemological Consequences of the Application of Neural Models to Mathematical Knowledge.** PhilML'23, Philosophy of Science Meets Machine Learning, Tübingen, Germany. Sept.

2023   **Tokenization and the Noiseless Channel.** ACL 23, Toronto, Canada. With V. Zouhar, C. Meister, L. Du, M. Sachan, and R. Cotterell. Nov.

2022   **Mathematics as Natural Language: Principles, Consequences and Challenges of the Application of NLP Models to the Treatment of Mathematical Knowledge.** CiE-2022, Computability in Europe 2022, Swansea, UK. July.

2020   **Mathematical Language Processing: A conceptual and technical framework for the automatic treatment of mathematical texts.** APMP-2020, 5th International Meeting of the Association of Philosophy of Mathematical Practices, Zurich, Switzerland. Feb.

Lectures and Invited Talks (selection)

Forthcoming

2026   International Conference on Critical Studies of AI (Côte d'Azur University, Nice, France). April.

2026   Philosophy Seminar (Paris-8 University, France).

Past

2025   **Language and Mathematics in the Time of AI. Philosophical and Theoretical Perspectives.** Kick-off meeting of the Malinca ERC Synergy Project, Institut Henri Poincaré, France. Oct.

2025   **Remarks on the Distributional Foundations of Language Models.** Plenary talk at the Seminar "Linguistics and Language Models: What Can They Learn from Each Other?", Leibniz Center for Informatics, Dagstuhl, Germany. July.

2025   **What are Neural Language Models the Model of? Epistemological and Theoretical Perspectives on LLMs.** Keynote lecture at the "NeuroMod" Annual Meeting, Université Côte d'Azur, Antibes, France. July.

2025   **Toward a Critical Formalism: Philosophical and Theoretical Effects of a Mathematical Critique of LLMs** Symposium "Chat Token Vector", Ca' Foscari University, Venice, Italy. May.

2025   **Épistémologie de l'apprentissage machine - Pour un formalisme critique.** Seminar HiPhiS, Université de Montpellier, France. Apr.

2025   **Toward a Critical Formalism: From the Philosophy to the Theory of Distributional Language Models.** Plenary Talk at the Symposium "Foundations of AI", ITS, The Graduate Center, CUNY, New York, USA. Apr.

2025   **How to Do Maths With Words. The Role of Language in Neural Machine Learning Applications to Mathematics.** Workshop "Bridging Histories: Literacy, Computer Sciences, and Mathematics in the 20th and the 21st Centuries", Cambridge, UK. Mar.

2025   **The Structure, Not the Prompt. For a Critical Formalism** Symposium "Vernacular AI", Digital Theory Lab, New York University. New York, U.S.A. Feb.

2024 *Sous les distributions, la structure!* **Unearthing structural(ist) features from linguistic distributions** Conference "LLMs and Digital Humanities", Université de Montréal, Canada. Nov.

2024 **Frege Mathematician.** Workshop "Frege in the History of Sciences". UMR STL, Université de Lille. Lille, France. June.

2024 **Critique de la Raison Linguistique.** Conference "Critique de l'Intelligence Artificielle". LLCP, Univ. Paris 8. Paris, France. May.

2024 **Notes on Critical AI.** Meta, New York, USA. April.

2024 **Notes on Critical AI.** ITS Seminar. ITS, The Graduate Center, CUNY, USA. April.

2023 **From Statistics to Algebra and Beyond: The Logic of Emergent Norms in Natural Language.** With John Terilla. Logique, Langage Et Computation : Autour De La Logique Linéaire et Ses Interfaces, IRPhiL, Lyon 3, Lyon, France. Nov.

2023 **Structuralisme et Intelligence Artificielle.** Linguistic Circle of Copenhagen. University of Copenhagen, Copenhagen, Denmark. May.

2023 **Understanding Language (Models): AI Language Models From a Structuralist Perspective.** Linguistic Circle of Copenhagen. University of Copenhagen, Copenhagen, Denmark. May.

2023 **The Language of Mathematics: Epistemological Consequences of applying AI methods to Mathematics.** Research Seminar. Cohn Institue for the History of Science and Ideas, Israel. April.

2023 **Peeking into the AI Language Modeling Black Box.** Lunch Seminar. Department of Philosophy, Carnegie Mellon University, USA. Feb.

2023 **Why Can Computers Understand Natural Language?** Digital Theory Lab Seminar. NYU, USA. Feb.

2023 **Neural Approaches to Mathematics.** ITS Seminar. ITS, The Graduate Center, CUNY, USA. Jan.

2022 **Content from Expressions: from Distributional Properties of Numerals to Arithmetical Content.** OCIE Seminar in the History and Philosophy of Mathematics and Logic. Chapman University, USA. Dec.

2022 **Some Ideas for a Distributional Approach to Arithmetical Content.** TDPhiMa3: Text Driven Approaches to the Philosophy of Mathematics 3. Universität Duisburg Essen, Germany. Sept.

2022 **Darings and Regrets: Crossed Perspectives Between Structuralism and Machine Learning.** Symposium "Facets of structural thinking. Reasons and methods of a rediscovery". University of Liège, Belgium. April.

2022 **Modèles neuronaux et savoir mathématique: l'apprentissage du symbolique.** Workshop ÉPISTÉMOPÉRIA (ÉPISTÉMologie des OPÉRations de l'Intelligence Artificielle). University of Franche-Comté, France. Fev.

2021 **Deep mathematics. The place of textuality in neural approaches to mathematical knowledge.** TDPhiMa2: Text Driven Approaches to the Philosophy of Mathematics 2. Universität Hamburg. Hamburg, Germany. Sept.

2021 **What do neural models tell us about the nature of language? Interactions between formal and computational linguistics.** ILFC Seminar, GDR LIFT. Paris, France. June.

2020 **The Logic of Language From the Distributional to the Structuralist Hypothesis through Types and Interaction.** SemioLog Seminar, Paris, France. Dec.

2020 **The Image of Language From the 19th Century to Our Days.** TCZ Interdisciplinary Seminar, Zurich, Switzerland. Sept.