

Juan Luis Gastaldi

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Education

- 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”. *Summa cum laude.*
- 2006-2007** **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).**

Professional Appointments

- April 2023-Present** **Institute of Machine Learning (IML), D-INFK, ETH Zurich.**
Doctoral Researcher. Advisor: Ryan Cotterell.
- Oct 2019-March 2023** **Chair of History and Philosophy of Mathematical Sciences, D-GESS, ETH Zurich.**
Marie Skłodowska-Curie Fellow (H2020). PI of the project “SemioMaths”.
- Oct 2019-Dec 2022** **Turing Centre, ETH Zurich.** Managing Director.
- Oct 2012-Sept 2023** **MO.CO.ESBA.** Professor of Philosophy and History of Ideas.
Tenured, on leave since Oct 2019.
- Jan 2018-Sept 2019** **SPHERE, UMR 7219, CNRS-Paris Diderot University.** Associate Researcher.
- Oct 2017-Dec 2017** **Institute of Philosophy, Czech Academy of Science.** Postdoctoral researcher.

- Nov 2016-Sep 2017 **Chair of History and Philosophy of Mathematical Sciences, D-GESS, ETH Zurich.**
Postdoctoral researcher.
- Mar 2016-Oct 2016 **SPHERE, UMR 7219, CNRS-Paris Diderot University.** Associate Researcher.
- Oct 2007-Sep 2014 **SPH, EA 4574, Bordeaux Montaigne University.** Doctoral Researcher.

Research Activities

Approved 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 Investigator: 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

- 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** (New York, USA)
Host: Prof. John Terilla. Aug 22-Feb 23.

Organisation of Scientific Events

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).

Seminars

- 2023-Present **NL Φ** (Reading group on the philosophy of NLP). IML-AI Center (ETH Zurich).
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.

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 Scurrall.
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 (Université 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 M. 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 II” (SS2023) (with Prof. R. Cotterell)
“Philosophy of Language and Computation” (AS2022) (with Prof. R. Cotterell)
“Images of Computing” (AS2021)
“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”
- 2023-Present 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: Professor of Philosophy and History of Ideas.**(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)

Institutional Responsibilities and Supervising Activities

- 2021-Present HaPoC Council.** President.
- 2019-Present D-GESS, ETH Zurich.** Supervision of graduate students.
- 2019-2022 Turing Centre Zurich, ETH Zurich.** Managing Director.
- 2012-2016 MO.CO.ESBA.** Head of the Research Department.
- 2012-2019 MO.CO.ESBA.** Supervision of MA Thesis of graduate students.

Others

External reviewer for several scientific journals (Nature Scientific Reviews, Philosophy & Technology, Humanities and Social Sciences Communications, etc.)

PC Member for different scientific conferences (HaPoC, CiE, XAI4, CLMPST)

Prizes, Awards, Fellowships

- 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.

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.

Languages

Spanish	Native
French	Near native (speaking, reading, writing)
English	Near native (speaking, reading, writing)
German	Good working knowledge (reading)
Italian	Good working knowledge (reading)
Portuguese	Good working knowledge (reading)

Publications List

Doctoral Dissertation

- [20] J. L. Gastaldi. “**Une archéologie de la logique du sens : arithmétique et contenu dans le processus de mathématisation de la logique au XIXe siècle**”. Theses. Université Michel de Montaigne - Bordeaux III, Sept. 2014. URL: <https://tel.archives-ouvertes.fr/tel-01174485>.

Publications in Peer-reviewed Scientific Journals

- [1] 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 AMS (forthcoming)* (2024).
- [6] 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 (Volume 1: Long Papers)*. Toronto, Canada: Association for Computational Linguistics, July 2023, pp. 5184–5207. DOI: 10.18653/v1/2023.acl-long.284. URL: <https://aclanthology.org/2023.acl-long.284>.
- [7] 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. URL: <https://aclanthology.org/2023.findings-acl.38>.
- [9] 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. URL: <https://doi.org/10.1007/s13347-020-00393-9>.
- [10] 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.
- [14] 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.
- [15] J. L. Gastaldi. “**Par-delà métaphore et littéralité. Le statut des mathématiques dans l’œuvre de Deleuze**”. In: *Implications Philosophiques* (2016). URL: <http://www.implications-philosophiques.org/actualite/une/par-dela-metaphore-et-litteralite/>.

- [16] 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.
- [25] J. L. Gastaldi. “**La politique avant l’être. Deleuze, ontologie et politique**”. In: *Cités* 40 (2009), pp. 59–73. ISSN: 12995495, 19696876. URL: <http://www.jstor.org/stable/40599521>.

Contributions to Books

- [2] 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, E. Haffner, and K. Volkert. Birkhäuser, *forthcoming* (2024).
- [3] 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. Springer, *forthcoming* (2024).
- [4] J. L. Gastaldi. “**Introduction to the Semiology of Mathematical Practices**”. In: *Handbook of the History and Philosophy of Mathematical Practice*. Ed. by B. Sriraman. Springer, *forthcoming* (2024).
- [5] J. L. Gastaldi, R. Moot, and C. Rétoré. “**Le contexte en traitement automatique des langues**”. In: *Les concepts fondateurs de la philosophie du langage: Contexte*. Ed. by B. Godart-Wendling. ISTE, *forthcoming* (2024).
- [8] 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. URL: https://doi.org/10.1007/978-3-030-94452-0_7.
- [13] 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.
- [18] 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**”. fr. In: *Lyotard à Nanterre*. Ed. by C. Pagès. Continents philosophiques. Paris: Klincksieck, 2010. ISBN: 978-2-252-03774-4.

Preprints

- [11] J. L. Gastaldi and L. Pellissier. “**The Logic of Language: from the Distributional to the Structuralist Hypothesis through Types and Interaction**”. Working paper or preprint. Dec. 2020. URL: <https://hal.archives-ouvertes.fr/hal-03064480>.

Submitted

- [s1] **Content from Expressions: The Place of Textuality in Deep Learning Approaches to Mathematics.**
Submitted to *Synthese* (accepted with modifications).

In Progress

- [p1] **Handbook of the History and Philosophy of Mathematical Practice.**
Editor of the section “Semiology of Mathematical Practice”. Work to be published by Springer; Chief Editor: Bharath Sriraman. Contributors: Jeremy Avigad, Karine Chemla, Juan Luis Gastaldi, Anna Kiel Steensen, Ladislav Kvasz, Reviel Netz, Lucien Vinciguerra, Roy Wagner, David Waszek. <https://meteor.springer.com/historyandphilosophymaths/?id=915&tab=About&mode=ReadPage&entity=6886>.
- [p2] **Computing Cultures: Historical and Philosophical Perspectives**
Guest editor of the SI “Computing Cultures: Historical and Philosophical Perspectives”, *Minds and Machines*. With Luc Pellissier. <https://www.springer.com/journal/11023/updates/18800754>.
- [p3] **Removing Spurious Ambiguity in Byte-Pair Encoding**
with R. Cotterell. To be submitted to *ACL*.
- [p4] **Epistemology of Natural Language Processing**
with Anna Rogers. To be submitted to *JAIR*.
- [p5] **Implicit Futuring in Natural Language Processing**
with Zeerak Talat, Amanda Curry & Gavin Abercrombie. To be submitted to *ACL*.
- [p6] **semiolog**
Gianni-G/semiolog: Alpha version (v0.0.0-alpha). Zenodo. <https://doi.org/10.5281/zenodo.7659083>; <https://pypi.org/project/semiolog/>. Software package for the analysis of mathematical textuality.

Outreach publications

- [12] J. L. Gastaldi and B. Serra. “*Swipe, ou l’écriture tout court.*” In: *Formules* 22 (2020).
- [17] J. L. Gastaldi. “*La Ville Lumière.*” In: *Atlas Solitude*. Ed. by S. Editions. Solitude Editions, 2015. Chap. Akademie Schloss Solitude, pp. 199–203.
- [19] J. L. Gastaldi. *Superpositions*. Texte pour l’exposition de Michaël Sellam: “des choses, de l’espace”, Galerie Vasistas. 2014.
- [21] J. L. Gastaldi. “*Bérénice Serra: AD64.*” In: *Infra* 7 (2013).
- [22] J. L. Gastaldi. “*Ouverture.*” In: *Quinze ans d’art à HEC*. Espace d’art contemporain HEC, 2013, pp. 102–105.
- [26] 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. Cragolini. La Cebra, 2008, pp. 249–262.
- [27] J. L. Gastaldi. “*De l’ “intéressant” dans l’art.*” In: *L’exposition des idées*. E.N.S./Villa Arson, 2007.
- [28] J. L. Gastaldi and S. Lorenzi. “*Rencontre.*” In: *L’exposition des idées*. E.N.S./Villa Arson, 2007.

Conferences, Lectures and Invited Talks

International Conference Papers (selection)

- 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.
- 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.
- 2019 **An alternative logical approach to machine learning.** HaPoC-2019, 5th International Conference on the History and Philosophy of Computing, Bergamo, Italy. Oct.
- 2019 **Identity and indiscernibility in the formal treatment of natural language.** Conference “Leibniz’s Principle of Identity of Indiscernibles and its Repercussion in Physics and Mathematics”, LIA “Identité, Forces, Quanta”, Paris, France. Sept.
- 2019 **Archéologie et changement conceptuel dans les mathématiques.** Advanced Franco-Mexican Seminar on History and Philosophy of Sciences, Paris, France. June.
- 2019 **De Morgan and Boole: The Dualities of Logic.** Workshop: Duality as an archetype of mathematical thinking, CIRM, Marseille, France. March.
- 2018 **The emergence of a mathematical concept of “symbol” in the work of Robert Woodhouse.** 29th Novembertagung Conference, Inst. of Math. of the Univ. of Seville, Seville, Spain. Nov.
- 2018 **Identity and types of units in language: What can we learn from word embeddings?** Conference “Le même et l’autre: identité, orthogonalité, types”, IRPhiL, Lyon 3 University, Lyon, France. Nov.
- 2018 **Diferencia y repetición a la luz de las teorías formales contemporáneas de la significación.** Keynote speaker at the international conference “Deleuze y La Filosofía de la Diferencia”, Universidad Javeriana, Bogotá, Colombia. Sept.
- 2018 **Semiology of mathematics and automatic corpus analysis.** “Semiomaths” First International Workshop, HPM-ETH, Zurich, Switzerland. March.
- 2018 **Signs and Calculation: A structuralist approach to language and computing.** HaPoC-2017, 4th International Conference on the Hist. and Phil. of Computing, Brno, Czech Republic. Oct.
- 2017 **The emergence of English Abstract Algebra. Conditions and limits of symbolism in mathematics.** Invited Speaker at the “Contemporary Mathematics and Philosophy Summer School”, International Centre of Mathematics and Informatics of Toulouse (CIMI), Toulouse, France. June.
- 2016 **Elements of semiology of mathematics.** Workshop III: “Philosophy and Philosophy of mathematics”, Thematic trimester “Current Issues in the Philosophy of Practice of Mathematics & Informatics” of the Int. Centre of Mathematics and Informatics of Toulouse (CIMI), Toulouse, France. June.
- 2016 **Death and resurrection of objects in formal sciences. The laborious obliteration of arithmetic in the emergence of Abstract Algebra, and its effects in the disappearing of Syllogistic Logic.** International conference: “Transformation, degradation, disappearance of scientific objects”, Institute of Philosophy of the Czech Academy of Sciences, Prague, Czech Republic. June.
- 2015 **Boole’s Arithmetic of 0 and 1: The mathematical conditions of logic.** Third International Meeting of the Association for the Philosophy of Mathematical Practice (APMP), Paris, France. Nov.
- 2015 **Frege’s *Habilitationschrift* and the functional approach to magnitude** HaPoC-2015, 3rd International Conference on the History and Philosophy of Computing, Pisa, Italy. Oct.

- 2015 **The content of numerical signs: The problematic meaning of numerical coefficients in Boole's Algebra of Logic.** George Boole Mathematical Scs. Conference, University College Cork, Ireland. Aug.
- 2015 **De la sémiotique des mathématiques à la logique du sens.** Conference “Deleuze: Machines, Virtuel, et Lignes de Fuites”, Centre Culturel International de Cerisy, University of Paris Ouest Nanterre, Cerisy, France. Aug.
- 2015 **Différence et Répétition dans la logique de George Boole.** Conference “Logic in question”, University of Paris 1 – Panthéon Sorbonne, Paris France. June.
- 2015 **L'archéologie à l'épreuve des savoirs formels.** Conference “Epistémologie Historique”, University of Paris 1 – Panthéon Sorbonne, Paris, France. May.
- 2015 **Signs - From a semiotics of mathematics to a formal approach in art.** Conference “Calculation and Aesthetics, Akademie Schloss Solitude, Stuttgart, Germany. April.
- 2013 **Analyticité et contenu dans le processus de mathématisation de la logique au XIXe siècle** Conference “Analyticité et Complexité”, IRPhil, Lyon 3 University, Lyon, France. Dec.
- 2013 **La répétition après la figure. L'autre forme dans le renouvellement du projet critique.** Conference “Deleuze et Lyotard: deux lignes de fuite pour la philosophie du vingtième siècle”, University of Toulouse Le Mirail, Toulouse, France. July.
- 2010 **Logic and Philosophy in the work of Kant and Hegel: The philosophical conditions for a general logic.** UNILOG-2010, World Congress and School On Universal Logic III, Lisbonne, Portugal. April.
- 2010 **Cavaillès et Lautman: Les formes du concept.** Conference “Cavaillès-Lautman-Canguilhem: Le Concept, L'Être, La Vie”, Réseau européen de recherche sur la Philosophie Française contemporaine, ENS, Paris, France. Jan.

Lectures and Invited Talks (selection)

- 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 Institute 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 ÉPISTÉ-MOPÉRIA (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.
- 2019 **La revanche connexionniste.** PhisIA Research Seminar (Philosophy, History and Sociology of Artificial Intelligence), Paris Diderot University, Paris, France. November.
- 2019 **Traitement automatique de corpus mathématiques: le projet SemioMaths.** Research Seminar of the LIPN Computer Science Lab, Paris Nord University, Paris, France. May.
- 2018 **“Activist” “Viewpoints” Lectures, Bob & Roberta’s Art Exhibition, MO.CO.PANACÉE Art Centre, Montpellier, France.** June.
- 2018 **Response to Andrew Arana’s talk “The disunity of mathematics”,** 4th Conference “Epistémologie Historique”, University of Paris 1 – Panthéon Sorbonne, Paris, France. May.
- 2018 **Sémiologie des mathématiques et analyse automatique de corpus.** Seminar “Logique, Mathématiques, Informatique, Raisonnement”, IRPhiL, Lyon 3 University, Lyon, France. Feb.
- 2018 **“Rage against the machine”: Révolution industrielle, révolution numérique.** Public lecture within the program of “Assemblée Générale. Mai 68”, Centre Pompidou, Paris, France. May.
- 2017 **“Robert Woodhouse: the birth of mathematical symbolism”.** “Philosophy of mathematics in the 19th Century”, Institute of Philosophy, Czech Academy of Science, Prague, Czech Republic. Dec.
- 2017 **Towards a semiology of mathematics.** Research Colloquium ETH-UTZ, Zurich, Switzerland. April.
- 2017 **Les arborescences de la logique** Conference Intuitio II, Esba TALM, Tours, France. Jan.
- 2016 **Epistemology and semiology of mathematical practice.** Invited lecture at the chair of Epistemology of the Faculty of Psychology, UNR, Rosario, Argentina. Aug.
- 2016 **Structuralism and poststructuralism. The continuity under the divergence.** Conference “Lacan and Deleuze in perspective” of the Postgrad. Dept. in Psychoanalysis, UNR, Rosario, Argentina. Aug.
- 2016 **L’autre archéologie du numérique: mathématiques, logique et langage dans le développement de l’informatique.** Research seminar, School of Fine Art and Design of Valence, Valence, France. Feb.
- 2016 **L’archéologie des savoirs formels.** Research seminar on didactics and epistemology of mathematics, Institut Montpelliérain Alexander Grothendieck (University of Montpellier), Montpellier, France. Jan.
- 2016 **Vies parallèles des formalismes.** Workshop “Poetry and Computing”, MO.CO.ESBA - hTh, Montpellier, France. Sept.
- 2015 **Les conditions d’une logique du sens. Frege vs. Russell et la double articulation des signes numériques.** Seminar “Philosophie française et philosophie analytique au XXe siècle”, CIEPFC, ENS, Paris, France. April.
- 2015 **The relation between logical content and arithmetic in the semiotic constitution of Boolean logic.** Workshop on Philosophy of Logic, Keio University, Tokyo, Japan. Feb.
- 2014 **Sens et mathématiques: La place des signes dans le processus de mathématisation de la logique de Boole à Frege.** Seminar “Philo/Maths XIX-XX siècles”, SPHERE, Paris, France. Dec.
- 2014 **Roundtable** with Jean-Yves Girard, Patrice Maniglier & David Zerbib, Conference “Intuitio”. ESAAA, Annecy, France. April.
- 2013 **Les formes impures de l’intuition: Figuralité et espace.** Session #1 of the “Laboratoire des Intuitions”. ESAAA, Annecy, France. Nov.
- 2013 **Frege et l’articulation du passage du contenu au sens.** Special session “Kant et Frege, Lectures croisées”, Seminar “Philosophie française et philosophie analytique au XXe siècle”, CIEPFC-ENS, Paris, France. June.

- 2013** **Le projet deleuzien d'une logique du sens, au croisement de la logique fré géenne et du structuralisme.** Workshop "Le structuralisme est un formalisme", Séminaire "Formalisme(s)", CIEPFC-ENS, Paris, France. Jan.
- 2012** **Philosophie française, Philosophie analytique et Formalisme.** Roundtable avec Jean-Michel Salanskis, Élie During and Tzuchien Tho, Conférence "Le Contemporain", CIEPFC-ENS, Paris, France. June.