Raphaël Tinarrage

Born 09/06/1993
(21) 96 717 7738
raphael.tinarrage@fgv.br
https://raphaeltinarrage.github.io/
Largo do Machado, Rio de Janeiro, Brazil

Academic Positions

Since 2021 **Post-doc**, FGV EMAp, Rio de Janeiro.
Theory and applications of Topological Data Analysis
Advisor: César Camacho

Education

2017-2020 **Graduate degree (PhD)**, Inria Saclay and Laboratoire de Mathématiques d'Orsay, France.
Thesis: Topological inference from measures and vector bundles
Advisors: Frédéric Chazal and Marc Glisse
Manuscript: `https://raphaeltinarrage.github.io/files/Tinarrage_Dissertation.pdf`
Reports: `https://raphaeltinarrage.github.io/files/Reports_Dissertation.pdf`

2016–2017 **Graduate degree (MSc)**, École Normale Supérieure Paris-Saclay, France.
M2R mathematics for life sciences

2015–2016 **Graduate degree (MSc)**, École Normale Supérieure Paris-Saclay, France.
M2 Preparation to the Agregation degree. Accepted, national rank 68^{th}

2014–2015 **Graduate degree (MSc)**, Paris-Saclay University, Orsay, France.
M1 Fundamental and applied mathematics, Magistère de mathématiques 2^{nd} year

2013–2014 **Undergraduate degree**, Paris-Saclay University, Orsay, France.
L3 Fundamental and applied mathematics, Magistère de mathématiques 1^{st} year

Research

List of publications: `https://raphaeltinarrage.github.io/files/Tinarrage_Publications.pdf`
Google Scholar: `https://scholar.google.com/citations?user=bkIa2aYAAAAJ&hl=en`

My work has led to the creation of the package *velour*, written in Python, which is available on
GitHub: `https://github.com/raphaeltinarrage/velour`
PyPI: `https://pypi.org/project/velour/`

Advisorship

Since 2021 **Data Analysis of Symmetries**, FGV EMAp, Rio de Janeiro.
MSc student: Henrique Hennes
Adaptation of tools from Lie geometry to Data Analysis

Since 2021 **Topological Data Analysis and Súmulas Vinculantes**, FGV EMAp, Rio de Janeiro.
Undergraduate students: Beatriz S. Chagas, Ana C. M. Jaccoud, Carla M. Damian and Pedro Burlini
Development of Data Analysis techniques for Brazilian legal documents.

Teaching

2021 **Topological Data Analysis with Persistent Homology**, FGV EMAp, Rio de Janeiro.
Professor, summer course for undergradute and master's students
Course website: `https://raphaeltinarrage.github.io/EMAp.html`
Course notes: `https://raphaeltinarrage.github.io/files/EMAp/SummerCourseTDA.pdf`
Videos: `https://www.youtube.com/playlist?list=PL_FkltNTtklB221BEq6zwb_FX5bIr7dvx`

2017-2020 **Statistical interpretation of data**, *UE M331, L3 MINT*, Université Paris-Saclay, Orsay.
Assistant professor, for undergraduate students

2017-2020 **Modelisation project**, *UE M326, L3 MINT*, Université Paris-Saclay, Orsay.
Assistant professor, for undergraduate students

2017-2019 **Ordinary differential equations**, *UE M257, L2 BC*, Université Paris-Saclay, Orsay.
Assistant professor, for undergraduate students
Notes: `https://raphaeltinarrage.github.io/M257.html`

2017-2020 **Organization of atelier MATh.en.JEANS**, Collège Alain Fournier, Orsay.
Vulgarisation of mathematics in middle school
Notes: https://raphaeltinarrage.github.io/MEJ.html

Talks

09/2022 **XI Encontro Internacional do CONPEDI**, Santiago, Chile.
O impacto da Súmula Vinculante 26 na diminuição de demanda similar no STF

09/2022 **XI Encontro Internacional do CONPEDI**, Santiago, Chile.
Progressão de regime em crimes hediondos no Supremo Tribunal Federal

04/2021 **SoCG - Minisymposium on Computational Topology**, online.
Simplicial approximation to CW-complexes in practice
Slides: https://raphaeltinarrage.github.io/files/Slides_SoCG2021.pdf
Video: https://www.youtube.com/watch?v=PaKkzcMZC70

04/2021 **EMAp Seminário**, FGV EMAp, online.
Topological inference in Topological Data Analysis II: Persistence barcodes
Slides: https://raphaeltinarrage.github.io/files/Slides_EMApII2021.pdf
Video: https://www.youtube.com/watch?v=HfkuIqxhjGY

04/2021 **EMAp Seminário**, FGV EMAp, online.
Topological inference in Topological Data Analysis I: Topology in datasets
Slides: https://raphaeltinarrage.github.io/files/Slides_EMApI2021.pdf
Video: https://www.youtube.com/watch?v=fqeazsBn3RE

12/2020 **Modelling, Analysis and Scientific Computing**, UMPA Lyon, online.
Introduction to Persistent Homology
Slides: https://raphaeltinarrage.github.io/files/Slides_UMPA2020.pdf

12/2020 **Applied Algebraic Topology Network**, online.
Persistent Stiefel-Whitney classes
Slides: https://raphaeltinarrage.github.io/files/Slides_AATRN2020.pdf
Video: https://www.youtube.com/watch?v=xnQdGRvWenw

11/2020 **Applied Topology Seminar**, EPFL Lausanne, online.
Persistent Stiefel-Whitney classes
Slides: https://raphaeltinarrage.github.io/files/Slides_EPFL2020.pdf
Video: https://www.youtube.com/watch?v=-AGpfIo8RsA

10/2020 **Thesis defense**, Laboratoire de Mathématiques d'Orsay.
Topological inference from measures and vector bundles
Slides: https://raphaeltinarrage.github.io/files/Slides_Dissertation.pdf
Video: https://youtu.be/kHGv8BfeHho

06/2020 **Symposium on Computational Geometry**, Young Researchers Forum, online.
Recovering the homology of immersed manifolds
Slides: https://raphaeltinarrage.github.io/files/Slides_SoCG2020.pdf
Video: https://www.youtube.com/watch?v=mXRjvwJJ8m8

05/2020 **Séminaire des doctorants**, Laboratoire de Mathématiques d'Orsay, online.
Introduction to Persistent Homology
Slides: https://raphaeltinarrage.github.io/files/Slides_seminaire_informel.pdf
Video: https://www.youtube.com/watch?v=uDba3kV3Sf0

03/2020 **Datashape Seminar**, Inria Saclay.
Introduction to characteristic classes
Notes: https://raphaeltinarrage.github.io/files/Notes_Datashape2020.pdf

10/2019 **Datashape Seminar**, Inria Saclay, Orsay.
Recovering the homology of immersed manifolds
Slides: https://raphaeltinarrage.github.io/files/Slides_Datashape2019.pdf

04/2019 **Symposium on Computational Geometry**, Portland, Oregon.
DTM-based filtrations
Slides: https://raphaeltinarrage.github.io/files/Slides_SoCG2019.pdf

04/2019 **Séminaire de l'équipe Topologie-Dynamique**, Laboratoire de Mathématiques d'Orsay.
DTM-filtrations

02/2019 **Séminaire des doctorants**, LAMFA Amiens, France.
Introduction to Persistent Homology

12/2018 **Séminaire des doctorants**, IMJ-PRG Jussieu, France.
Introduction to Persistent Homology

12/2018 **Séminaire des doctorants**, Laboratoire de Mathématiques d'Orsay.
Introduction to Persistent Homology

11/2018 **Datashape Seminar**, Inria Saclay.
DTM-filtrations

Posters

06/2022 **Algebraic Topology: Methods, Computation and Science**, University of Oxford.
Simplicial approximation to CW-complexes in practice
Poster: `https://raphaeltinarrage.github.io/files/Poster_ATMCS_2022.pdf`

06/2018 **Algebraic Topology: Methods, Computation and Science**, IST Austria.
DTM-filtrations
Poster: `https://raphaeltinarrage.github.io/files/Poster_ATMCS.pdf`

Last update: 26/09/2022