



ALEX CASAROTTI

Nationality: Italian **Date of birth:** 20/08/1993 **Gender:** Male

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📍 **Work:** Dipartimento di Matematica, Piazza di Porta S. Donato, 5, 40126 Bologna (Italy)

📍 **Home:** Via Pioppa, 50, 44020 Ostellato (Italy)

WORK EXPERIENCE

Postdoc Researcher in Mathematics

University of Bologna [15/07/2023 – Current]

Postdoc Researcher in Mathematics

University of Trento [01/05/2021 – 30/04/2023]

My research fields are tensor decompositions, birational geometry and algebraic statistics.

PhD Student in Mathematics

University of Ferrara, supervisor Prof. Massimiliano Mella [01/11/2017 – 01/11/2020]

Winner of the prize Con.Sienze 2021/2022 as the best PhD. thesis in Mathematics.

Visiting Student

Warsaw University, IMPAN [01/10/2018 – 02/11/2018]

Country: Poland

EDUCATION AND TRAINING

Bachelor Degree in Mathematics

University of Ferrara [2012 – 2015]

Final grade: 110/110 with Honors

Thesis: Reducible fibers of pencils of curves in P^2

Supervisor: Prof. Massimiliano Mella

Master Degree in Mathematics

University of Ferrara [2015 – 2017]

Final grade: 110/110 with Honors

Thesis: Hartshorne's conjecture on some special projective varieties

Supervisor: Prof. Paltin Ionescu

LANGUAGE SKILLS

Mother tongue(s): **Italian**

Other language(s):

English

LISTENING C1 READING C1 WRITING C1

SPOKEN PRODUCTION C1 SPOKEN INTERACTION C1

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

PUBLICATIONS

"On Comon's and Strassen's conjectures"

[2018]

Published in Mathematics

with Alex Massarenti and Massimiliano Mella

"From non Defectivity to Identifiability"

[2019]

Published in JEMS, Journal of the European Mathematical Society

with Massimiliano Mella

"On secant dimensions and identifiability of Flag varieties"

[2019]

Published in JPAA, Journal of Pure and Applied Algebra, 2022, Vol. 226, Issue 6, 106969

with Ageu Barbosa Freire and Alex Massarenti

"On tangential weak defectiveness and identifiability of projective varieties"

[2020]

Published in Annali della Scuola Normale Superiore di Pisa, Classe di Scienze

with Ageu Barbosa Freire and Alex Massarenti

"Tangential weak defectiveness and generic identifiability"

[2020]

Published in IMRN, International Mathematics Research Notices

with Massimiliano Mella

"Complete singular collineations and quadrics"

[2021]

Accepted for publication in IMRN, International Mathematics Research Notices

with Elsa Corniani and Alex Massarenti

Identifiability for mixtures of centered Gaussians and sums of powers of quadratics

[2022]

Published in Bulletin of the London Mathematical Society

with Alexander Blomenhofer, Mateusz Michalek and Alessandro Oneto

Waring identifiability for powers of forms via degenerations

[2022]

Submitted to Proceedings of the London Mathematical Society

with Elisa Postinghel

COMMUNICATION AND INTERPERSONAL SKILLS

Soft Skills

1. I love to think in an analytical and abstract way. I'm very prone to problem solving and I love to put myself in challenge with mathematical and scientific problems.
2. During my research I often collaborate with strong research groups. I like to help other people and I love to be inspired by different ideas.
3. I'm very open to learn about different techniques in all the scientific areas.
4. I have driving license.

SEMINARS & TALKS

Seminars Attended

[01/11/2017 – Current]

1. "Real algebraic geometry and tensors", in collaboration with the University of Ancona, Bologna, Ferrara, Florence, Siena and Trento (2017/2020)
2. October 2018: VAT Semester (Varieties: Arithmetic and Transformations), Warsaw, Poland
3. September 2019: Einstein Workshop, Real Applied Algebraic Geometry, TU Berlin, Germany
4. June 2020: Macaulay 2 Workshop, University of Warwick, England
5. October 2021: Newton-Okounkov bodies and Fanosearch, Levico Terme, Italy
6. October 2022: AGATES, Algebraic Geometry with Applications to Tensors and Secants, Warsaw, Poland
7. Since May 2021 I'm an organizer of the Geometry Seminars in Trento, Italy

Talks

1. October 2018: Talk entitled "**On Comon's and Strassen's Conjecture**", Impan, Warsaw
2. December 2019: Talk entitled "**From non Defectivity to Identifiability**", University of Bologna
3. November 2020: Talk entitled "**Tangential weak defectiveness and generic identifiability**" within the PhD Tensor project, organized by Alessandra Bernardi, University of Trento
4. January 2021: Talk entitled "**Defectiveness and Identifiability: a geometric point of view on tensor analysis**", invited by J.M Landsberg, Texas A&M University (via zoom)
5. May 2021: Talk entitled "**Defectiveness and Identifiability, from generic to subgeneric rank**", invited by Elisa Postinghel, University of Trento.
6. September 2021: Talk entitled "**Secants, Identifiability and Flag Varieties**" for the seminar cycle "Doc in Progress", Trento
7. October 2022: Talk entitled "**Identifiability for Gaussian Mixtures**", invited by Luca Chiantini and Jarosław Buczyński, AGATES, Warsaw
8. January 2023, Talk entitled "**Waring problem for powers of forms**" for the seminar cycle "Tensor group", Trento

TEACHING

Teaching Experience

1. Tutor for the course of Geometry I, University of Ferrara 2017
2. Teaching Assistant for the course of Geometry I, University of Ferrara, 2018
3. Tutor for the course of Geometry II (Topology), University of Ferrara 2018
4. Tutor for the course of Geometry II (Topology), University of Ferrara 2019
5. Tutor for the course of Algebra I, University of Ferrara 2019
6. Tutor for the course of Geometry II (Topology), University of Ferrara 2020
7. Teaching assistant in Mathematics for Computer Science, University of Ferrara 2021
8. Teaching assistant for the course of Geometry I, University of Trento 2021
9. Teaching assistant for the course of Geometry I, University of Trento 2022
10. Teaching assistant for the course of Linear Algebra for Engineers, University of Trento 2022

DIGITAL SKILLS

Mathematics & Programming

1. Full knowledge of the principal Algebraic Geometry software like Macaulay2, Magma and Maple.
2. Full knowledge of LaTeX
3. Good knowledge of the main features of Office packages, with particular attention to the mathematical and analytical side of Excel.
4. Good knowledge of MATLAB
5. Good knowledge of Python language, Java and Processing (p5).
6. Basic knowledge of SQL and XML.
7. Starting level knowledge of Power BI.

01/08/2023