

Sebastiano Cultrera di Montesano

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EDUCATION

PhD in Mathematics, Institute of Science and Technology Austria Thesis: Geometry and Topology of Spatial Arrangements Supervised by Prof. Edelsbrunner	Vienna, Austria Sep. 2018 – Dec. 2023 (expt.)
Master of Advanced Studies in Pure Mathematics, University of Cambridge Thesis: Topological Hochschild Homology Distinction awarded for my thesis	Cambridge, UK Sep. 2017 - Jun. 2018
Bachelor in Mathematics with First Class Honours, University of Glasgow Thesis: Hopf Algebras and Quantum groups Awarded 4 academic prizes for top exams' performance	Glasgow, UK Sep. 2013 - Jun. 2017

WORK EXPERIENCE

Research Scientist, Owkin Inc. <ul style="list-style-type: none">Built a geometric & topological framework to study cells' interactions in the tumor microenvironmentComplemented deep learning algorithms developed by Owkin with interpretable geometric features	Paris, France May. 2021 - Dec. 2021
Research Scientist, University of Glasgow (School of Mathematics and Statistics) <ul style="list-style-type: none">Selected and funded by the London Mathematical SocietyApplied techniques from algebraic geometry and representation theory to study phylogenetic trees	Glasgow, UK Jun. 2016 - Aug. 2016
Research Scientist, University of Glasgow (School of Neuroscience and Psychology) <ul style="list-style-type: none">Selected and funded by the Wellcome Trust FoundationInvestigated how the brain integrates visual information into prior expectation with fMRI	Glasgow, UK Jun. 2015 - Jul. 2015

PUBLICATIONS AND PREPRINTS (authors are listed in alphabetical order)

Persistent Homology of Chromatic Alpha Complexes, with O. Draganov, H. Edelsbrunner, M. Saghafian, <i>arxiv:2212.03128</i>	2023
On the Size of Chromatic Delaunay Mosaics, with R. Biswas, O. Draganov, H. Edelsbrunner, M. Saghafian, <i>Submitted at DCG</i>	2023
Dynamically Maintaining the Persistent Hom. of Time Series, with H. Edelsbrunner, M. Henzinger, L. Ost, <i>Submitted at SODA</i>	2023
Depths in Arrangements: D-S-E Relations with Applications, with R. Biswas, H. Edelsbrunner, M. Saghafian, <i>Accepted at JACT</i>	2022
Geometric Characterization of the Persistence of 1D Maps, with R. Biswas, H. Edelsbrunner, M. Saghafian, <i>Published at JACT</i>	2023
Cont. and Discr. Radius Funct. on Vor. Tess. and Del. Mos., with R. Biswas, H. Edelsbrunner, M. Saghafian, <i>Published in DCG</i>	2021
Counting Cells of Order-k Vor. Tess. in R^3 with Morse Th., with R. Biswas, H. Edelsbrunner, M. Saghafian, <i>Published in SoCG</i>	2021

SCHOLARSHIPS AND AWARDS

Academic:

Best Student Presentation at 37 th Symp. on Comp. Geometry (23 students presentations)	2021
London Mathematical Society Summer School, Selected with 50 of the best UK maths undergraduates of my year	2016
LMS Undergraduate Research Bursary, Awarded for my research project in Mathematics	2016
Dougall Prize, Awarded to most distinguished students in Mathematics (awarded twice)	2015, 2016
Lanfine Bursary, Awarded on the recommendation of the Head of Department (awarded twice)	2015, 2016
Wellcome Trust Vacation Scholarship, Awarded for my research project in Neuroscience	2015
Borsa di Studio Mario Negri, Italian student with a first class average (awarded four consecutive times)	2014, 2015, 2016, 2017

Non-academic:

University of Cambridge Full Blue, Excellent basketball performance (best 4 players in the team)	2017
University of Glasgow Gordon Josey Bursary, Excellent basketball performance (awarded to 2 players in the team)	2016
Student-Athlete of the year for the Glasgow University Basketball Club, Best combined performance	2015

INVITED TALKS

Structural Biology Seminar at the Menche Lab , The Shape of a Point Set	24/05/23
Rabadan Group Meeting , Chromatic Alpha Complexes	22/05/23
Applied Topology Seminar at the EPFL , Chromatic Alpha Complexes	18/04/23
European Institute of Oncology, Milan , Chromatic Alpha Complexes in Spatial Biology	30/01/23
Workshop on Topological Methods in Data, Heidelberg , Chromatic Point Clouds – Combinatorics and Topology	30/09/22
Young Topologists Meeting, Copenhagen , Geometric Characterization of Persistence Pairs of 1D Maps	26/07/22
Policlinico Gemelli, Rome , Predicting BRCA mutation from H&E slides	27/04/22
Medical University of Vienna, Vienna , Geometry and Topology in Digital Pathology	02/03/22
Owkin, Paris , Introduction to Topological Data Analysis	08/07/21
Symp. on Computat. Geometry, Online , Counting Cells of Order-k Voronoi Tessellations in R^3 with Morse Theory	11/06/21
TopApp Workshop, Vienna , Discrete Morse Theory in Action	24/04/19

EXTRACURRICULAR ACTIVITIES

XBIO Course– Building a Biomedical Business (selected participant)	Apr. 2023 – Jun. 2023
Entrepreneurship Lab at ISTA Technology Transfer	Oct. 2020
Young Scientist Symposium: Motion in Nature and Technology (organizer)	May 2019
TopApp Workshop (main organizer)	Apr. 2019
President of the Glasgow University Men's Basketball Club	May 2015 – Jun. 2017

LANGUAGE AND IT SKILLS

Language Skills: Italian (native speaker), French (fluent), Spanish (fluent), English (fluent)
IT Skills: Latex, Python, Office