

PERSONAL INFORMATION **Stefano Della Fiore**✉ [sdellafiore@unisa.it](mailto:sdellafiore@unisa.it) [s.dellafiore001@unibs.it](mailto:s.dellafiore001@unibs.it)🌐 <http://stefano-dellafiore.me>RESEARCH INTERESTS **Discrete Mathematics, Information Theory, Combinatorics**

## WORK EXPERIENCE

2023–on going **Postdoctoral Researcher**

Educational Institution University of Salerno

Main activity: Study of the asymptotic behavior of code rates which is often related to problems in extremal combinatorics.

May 2019 – November 2019 **Full stack developer**

Main activities and responsibilities: Full stack developer using frameworks such as Eloquent, Slim and Twig. Employed as: intern/trainee - short term agency contact | Company sector: Engineering and design

## EDUCATION

a.y. 2019–2022 **PhD in Information Engineering** EQF 8

Educational Institution University of Brescia. Doctor of Philosophy (Ph. D.)

Thesis *Asymptotic growth of codes and related combinatorial problems*a.y. 2016–2018 **Master's degree in Communication Technologies and Multimedia** EQF 7

Educational Institution University of Brescia, Department of Information Engineering, 2nd level-cycle degree/Master of Science (2 years)

Thesis *Constraints in Source Coding*a.y. 2013–2016 **Bachelor's degree in Computer Engineering** EQF 6

Educational Institution University of Brescia - Department of Information Engineering 1st level-cycle degree/Bachelor (3 years)

Thesis *Implementation of an algorithm for the processing of a sequence based on analysis of iterative local symmetries*

## PUBLICATIONS

- [1] S. Costa, S. Della Fiore, and A. Ferraguti. "Variants of the Erdős distinct sums problem and variance method". In: *submitted* (2024).
- [2] S. Della Fiore and M. Dalai. "Upper bounds on the rate of linear  $q$ -ary  $k$ -hash codes". In: *to appear in IEEE International Symposium on Information Theory* (2024).
- [3] A. Gnutti, S. Della Fiore, M. Savardi, Y. Chen, R. Leonardi, and W. Peng. "LiDAR Depth Map Guided Image Compression Model". In: *submitted* (2024).
- [4] S. Costa and S. Della Fiore. "Alternating Parity Weak Sequencing". In: *Journal of Combinatorial Designs* 32 (2024), pp. 308–327.
- [5] M. Dalai, S. Della Fiore, A. A. Rescigno, and U. Vaccaro. "An Efficient Algorithm for Group Testing with Runlength Constraints". In: *submitted* (2023).
- [6] S. Costa, S. Della Fiore, and M. A. Ollis. "Sequencings in Semidirect Products via the Polynomial Method". In: *submitted* (2023).
- [7] S. Costa and S. Della Fiore. "Existence of  $\lambda$ -Fold Non-zero sum Heffter arrays through local considerations". In: *The Australasian Journal of Combinatorics* 87 (2023), pp. 301–339.

- [8] S. Costa and S. Della Fiore. "Bounds on the Higher Degree Erdős-Ginzburg-Ziv Constants over  $\mathbb{F}_q^n$ ". In: *Archiv der Mathematik* 122 (2023), pp. 17–29.
- [9] S. Costa, S. Della Fiore, and A. Ferraguti. "Higher degree Erdős distinct evaluations problem". In: *European Conference on Combinatorics, Graph Theory and Applications 12* (2023).
- [10] M. Dalai, S. Della Fiore, A. A. Rescigno, and U. Vaccaro. "Bounds and Algorithms for Frameproof Codes and Related Combinatorial Structures". In: *IEEE Information Theory Workshop* (2023), pp. 544–549.
- [11] S. Costa, M. Dalai, and S. Della Fiore. "Variations on the Erdős distinct-sums problem". In: *Discrete Applied Mathematics* 325 (2023), pp. 172–185.
- [12] S. Della Fiore, M. Dalai, and U. Vaccaro. "Achievable Rates and Algorithms for Group Testing with Runlength Constraints". In: *IEEE Information Theory Workshop* (2022), pp. 576–581.
- [13] S. Della Fiore, A. Gnutti, and S. Polak. "The maximum cardinality of triferent codes with lengths 5 and 6". In: *Examples and Counterexamples 2* (2022), p. 100051.
- [14] S. Costa and S. Della Fiore. "Weak sequenceability in cyclic groups". In: *Journal of Combinatorial Designs* 30.12 (2022), pp. 735–751.
- [15] S. Costa, S. Della Fiore, M. A. Ollis, and S. Z. Rovner-Frydman. "On Sequences in Cyclic Groups with Distinct Partial Sums". In: *The Electronic Journal of Combinatorics* 29 (3 2022), P3.33–P3.33.
- [16] S. Costa, S. Della Fiore, and Anita Pasotti. "Non-zero sum Heffter arrays and their applications". In: *Discrete Mathematics* 345 (9 2022), p. 112952.
- [17] S. Della Fiore and M. Dalai. "A note on  $\bar{2}$ -separable codes and  $B_2$  codes". In: *Discrete Mathematics* 345 (3 2022), p. 112751.
- [18] S. Della Fiore, S. Costa, and M. Dalai. "New upper bounds for  $(b, k)$ -hashing". In: *IEEE International Symposium on Information Theory* (2021), pp. 256–261.
- [19] S. Della Fiore, S. Costa, and M. Dalai. "Improved Bounds for  $(b, k)$ -Hashing". In: *IEEE Transactions on Information Theory* 68 (8 2022), pp. 4983–4997.

## REVIEWING ACTIVITIES

Activities Reviewer for several journals in different areas, among which: Journal of Combinatorial Theory (JCTA), IEEE Transactions on Information Theory, IEEE Transactions on Image Processing

## TEACHING ACTIVITIES

a.y. 2023–2024 Assistant for "Elementi di Telecomunicazione" (6CFU), Master of Science in Telecommunication Engineering, University of Brescia

a.y. 2023–2024 Assistant for "Algebra e Geometria" (9CFU), Bachelor of Science in Computer Engineering, University of Brescia

## CONFERENCES

ISIT 2021 IEEE International Symposium on Information Theory, Melbourne, Australia, July 2021  
 ITW 2021 IEEE Information Theory Workshop, Kanazawa, Japan, October 2021  
 Combinatorics 2022 International conference in pure and applied combinatorics, Mantua, Italy, May 2022  
 ISIT 2022 IEEE International Symposium on Information Theory, Espoo, Finland, June 2022  
 ITW 2022 IEEE Information Theory Workshop, Mumbai, India, November 2022  
 4TU workshop 4TU Combinatorics in digital communications workshop, Eindhoven, Holland, April 2023  
 ITW 2023 IEEE Information Theory Workshop, Saint-Malo, France, April 2023

## ACADEMIC SCHOOLS

ESIT 2018 European School of Information Theory, Bertinoro, Italy, May 2018  
 ESIT 2021 European School of Information Theory, Online, November 2020  
 NASIT 2021 North America School of Information Theory, Online, June 2021  
 ESIT 2022 European School of Information Theory, Wien, Austria, July 2021

## PERSONAL SKILLS

Mother tongue Italian

Other languages

	UNDERSTANDING		SPEAKING		WRITING
	Listening	Reading	Spoken interaction	Spoken production	
English	B2	B2	B2	B2	B2

Computer skills experience with Python, C, C++, Java, Matlab, Mathematica, GAP and SageMath