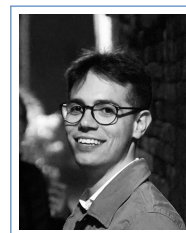


# Stefano Della Fiore

## Curriculum vitae

University of Brescia  
Department of Information Engineering  
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### Research Interests

**Discrete Mathematics, Information Theory, Combinatorics.**

### Work experience

- 2024 – present **RTDa Researcher**, *University of Brescia, Department of Information Engineering.*  
Main activity Study of new methods to encode and compress multimedia signals using deep learning approaches
- 2023 – 2024 **Postdoctoral Researcher**, *University of Salerno, Department of Informatics.*  
Main activity Study of the asymptotic behavior of code rates which is often related to problems in extremal combinatorics
- 2019 – 2019 **Full stack developer**, *Servonet s.r.l.*  
Main activity Full stack developer using frameworks such as Eloquent, Slim and Twig

### Education and training

#### Ph.D.

- a.y. 2019–2022 **Information Engineering**, *University of Brescia, Department of Information Engineering, Brescia, cum laude.*  
Thesis title *Asymptotic growth of codes and related combinatorial problems*  
Advisor Prof. Marco Dalai

#### Master of Science

- a.y. 2016–2018 **Telecommunications Engineering**, *University of Brescia, Brescia, 110/110 cum laude.*  
Thesis title *Constraints in Source Coding.*  
Advisor Prof. Marco Dalai

#### Bachelor of Science

- a.y. 2013–2016 **Computer Engineering**, *University of Brescia, Brescia.*  
Thesis title *Implementation of an algorithm for the processing of a sequence based on analysis of iterative local symmetries*  
Advisor Prof. Riccardo Leonardi

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## Professional Activities

- 2020 – present **Reviewer of international journals.**  
IEEE Transaction on Information Theory, IEEE Transactions on Image Processing, Discrete Mathematics, Designs, Codes and Cryptography, Journal of Combinatorial Theory Series A, Discrete Applied Mathematics.
- 2020 – present **Member, IEEE Information Theory Society (ITSoc).**
- 2026 – present **Secretary/Treasurer, IEEE Information Theory Society Italy Section Chapter.**

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## Vocational experience

### Visiting researcher

- Oct. 2025 **Universitat Politècnica de Catalunya, Barcelona, Spain.**  
Host professor: Prof. Lluís Vena Cros

### International collaborations

- 2021–present **Emerson College, Boston, Massachusetts, USA.**
- 2025–present **Universitat Politècnica de Catalunya, Barcelona, Spain.**

### Presentations at international conferences

- July 2021 **IEEE International Symposium on Information Theory, Melbourne, Australia.**
- Oct. 2021 **IEEE Information Theory Workshop, Kanazawa, Japan.**
- Sept. 2022 **Combinatorics 22, International conference in pure and applied combinatorics, Mantua, Italy.**
- June 2022 **IEEE International Symposium on Information Theory, Espoo, Finland.**
- Nov. 2022 **IEEE Information Theory Workshop, Mumbai, India.**
- Apr. 2023 **4TU Combinatorics in Digital Communications Workshop, Eindhoven, Holland.**
- Apr. 2023 **IEEE Information Theory Workshop, Saint-Malo, France.**
- July 2024 **IEEE International Symposium on Information Theory, Athens, Greece.**
- Sept. 2025 **IEEE European Signal Processing Conference, Palermo, Italy.**
- Sept. 2025 **10th Conference on Graph Theory, Cracow, Poland.**

### Academic Schools

- ESIT 2018 **European School of Information Theory, Bertinoro, Italy, May 2018.**
- NASIT 2021 **North America School of Information Theory, Online, USA, June 2021.**
- ESIT 2022 **European School of Information Theory, Wien, Austria, July 2022.**

### Awards

- 2025 **Winner of the UNITA Starting Tech Transfer Grants 2025 task 4.1 UNITA – funded by UNITA – with a proposal entitled “Regional Hospitality Transition Tool: A Machine Learning Decision Support Platform for the Accommodation Sector,” in collaboration with the University of Turin, Italy. Amount won: €7.166,88.**

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## Teaching activities

- a.y. 2025–2026 **Teaching professor**, University of Brescia.  
PhD Course on "Algebraic and analytical methods in Coding Theory" (27 hours), PhD in Information Engineering.
- a.y. 2025–2026 **Teaching assistant**, University of Brescia.  
Assistant for "Fondamenti di Telecomunicazioni" (6CFU), Bachelor of Science in Physical and Mathematical Engineering.
- a.y. 2024–2026 **Teaching assistant**, University of Brescia.  
Assistant for "Advanced Methods for Information Representation" (6CFU), Master of Science in Telecommunication Engineering.
- a.y. 2024–2025 **Teaching assistant**, University of Brescia.  
Assistant for "Fondamenti di Automatica" (9CFU), Bachelor of Science in Information Engineering.
- a.y. 2024–2025 **Teaching assistant**, University of Brescia.  
Assistant for "Algebra Lineare e Geometria" (6CFU), Bachelor of Science in Physical and Mathematical Engineering.
- a.y. 2023–2024 **Teaching assistant**, University of Brescia.  
Assistant for "Elementi di Telecomunicazione" (6CFU), Bachelor of Science in Telecommunication Engineering.
- a.y. 2023–2024 **Tutor**, University of Brescia.  
Tutor for "Algebra e Geometria" (9CFU), Bachelor of Science in Computer Engineering.

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## Personal skills

### Language

Italian **Native**

English **Intermediate**

### Information technology

Office LaTeX

Programming C, C++, Java, Python

Tools Matlab, Mathematica, GAP, SageMath

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## Publications

- 1 S. Della Fiore, A. Gnutti, M. Dalai, P. Migliorati, and R. Leonardi, "End-to-end semantic preservation in text-aware image compression systems," *submitted*, 2026.
- 2 S. Costa, M. Dalai, S. Della Fiore, and A. Pasotti, "Definability of some k-ary relations over second order kinds of logics," *submitted*, 2026.
- 3 S. Costa, S. Della Fiore, and E. R. Engel, "Graham's rearrangement for a class of semidirect products," *submitted*, 2026.
- 4 S. Costa and S. Della Fiore, "Weak freiman isomorphisms and sequencings of small sets," *submitted*, 2026.
- 5 S. Costa, S. Della Fiore, and M. A. Ollis, "Sequencings in semidirect products via the

- polynomial method," *to appear in the 34th Midwestern Conference on Combinatorics and Combinatorial Computing*, 2026.
- 6 S. Della Fiore and M. Dalai, "Bounds on  $k$ -hash distances and rates of linear codes," *to appear in IEEE Transactions on Information Theory*, 2026.
  - 7 S. Costa, S. Della Fiore, and E. Engel, "Graham's rearrangement for dihedral groups," *European Conference on Combinatorics, Graph Theory and Applications*, pp. 326–331, 2025.
  - 8 S. Della Fiore, A. Gnutti, M. Dalai, P. Migliorati, and R. Leonardi, "Tfic: End-to-end text-focused image compression for coding for machines," *IEEE European Signal Processing Conference*, pp. 1382–1386, 2025.
  - 9 S. Costa, S. Della Fiore, and A. Ferraguti, "Variants of the erdős distinct sums problem and variance method," *Discrete Applied Mathematics*, no. 369, pp. 110–123, 2025.
  - 10 S. Della Fiore and M. Dalai, "Upper bounds on the rate of linear  $q$ -ary  $k$ -hash codes," *IEEE International Symposium on Information Theory*, pp. 2610–2615, 2024.
  - 11 A. Gnutti, S. Della Fiore, M. Savardi, Y. Chen, R. Leonardi, and W. Peng, "Lidar depth map guided image compression model," *IEEE International Conference on Image Processing*, pp. 1890–1896, 2024.
  - 12 S. Costa and S. Della Fiore, "Alternating parity weak sequencing," *Journal of Combinatorial Designs*, no. 32, pp. 308–327, 2024.
  - 13 M. Dalai, S. Della Fiore, A. A. Rescigno, and U. Vaccaro, "An efficient algorithm for group testing with runlength constraints," *Discrete Applied Mathematics*, no. 360, 2024.
  - 14 S. Costa and S. Della Fiore, "Existence of  $\lambda$ -fold non-zero sum heffter arrays through local considerations," *The Australasian Journal of Combinatorics*, no. 87, pp. 301–339, 2023.
  - 15 S. Costa and S. Della Fiore, "Bounds on the higher degree erdős-ginzburg-ziv constants over  $\mathbb{F}_q^n$ ," *Archiv der Mathematik*, no. 122, pp. 17–29, 2023.
  - 16 S. Costa, S. Della Fiore, and A. Ferraguti, "Higher degree erdős distinct evaluations problem," *European Conference on Combinatorics, Graph Theory and Applications*, no. 12, 2023.
  - 17 M. Dalai, S. Della Fiore, A. A. Rescigno, and U. Vaccaro, "Bounds and algorithms for frameproof codes and related combinatorial structures," *IEEE Information Theory Workshop*, pp. 544–549, 2023.
  - 18 S. Costa, M. Dalai, and S. Della Fiore, "Variations on the erdős distinct-sums problem," *Discrete Applied Mathematics*, vol. 325, pp. 172–185, 2023.

- 19 S. Della Fiore, M. Dalai, and U. Vaccaro, "Achievable rates and algorithms for group testing with runlength constraints," *IEEE Information Theory Workshop*, pp. 576–581, 2022.
- 20 S. Della Fiore, A. Gnutti, and S. Polak, "The maximum cardinality of trifferent codes with lengths 5 and 6," *Examples and Counterexamples*, vol. 2, p. 100051, 2022.
- 21 S. Costa and S. Della Fiore, "Weak sequenceability in cyclic groups," *Journal of Combinatorial Designs*, vol. 30, no. 12, pp. 735–751, 2022.
- 22 S. Costa, S. D. Fiore, M. A. Ollis, and S. Z. Rovner-Frydman, "On sequences in cyclic groups with distinct partial sums," *The Electronic Journal of Combinatorics*, vol. 29, pp. P3.33–P3.33, 2022.
- 23 S. Costa, S. D. Fiore, and A. Pasotti, "Non-zero sum heffter arrays and their applications," *Discrete Mathematics*, vol. 345, p. 112952, 2022.
- 24 S. D. Fiore and M. Dalai, "A note on  $\bar{2}$ -separable codes and  $b_2$  codes," *Discrete Mathematics*, vol. 345, p. 112751, 2022.
- 25 S. D. Fiore, S. Costa, and M. Dalai, "Improved bounds for  $(b, k)$ -hashing," *IEEE Transactions on Information Theory*, vol. 68, pp. 4983–4997, 2022.
- 26 S. D. Fiore, S. Costa, and M. Dalai, "New upper bounds for  $(b, k)$ -hashing," *IEEE International Symposium on Information Theory*, pp. 256–261, 2021.