Curriculum Vitae and Publications

Giulio Cerbai

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Current Position

2017-Present: PhD student at the University of Florence.

Education

2017: Master degree in Mathematics at the University of Florence with 110/110 cum laude.

2009: High school diploma at Liceo Scientifico Agnoletti with 100/100.

Grants and Awards

2017: Winner (first place) of best master thesis award at the University of Florence.

Research Interests

Enumerative and bijective combinatorics. Specifically:

- Permutation patterns.
- Sorting with generalized stacks.
- Genome rearrangement models.
- Hamiltonianicity of Cayley graphs.

Scientific Activity

April 29 - May 25, 2019, Reykjavik: Stay at the University of Iceland for research activity with Professor Anders Claesson

November 2019-Present: Organizer of *Combinatorics Seminars at Ulisse Dini*

June 22-24, 2020: Organizer of the conference *GASCom2020* on random generation of combinatorial structures (postponed due to COVid)

List of Publications

Pattern avoiding permutations in genome rearrangement problems: the transposition model, G. Cerbai, L. Ferrari, *Permutation Patterns 2017. p. 1-4, Local Proceedings, Reykjavik, Iceland, 26-30 June 2017*

Permutation patterns in genome rearrangement problems, G. Cerbai, L. Ferrari, *Proc. of the 11th international conference on random and exhaustive generation of combinatorial structures* (GASCom2018), CEUR-WS. vol-2113, 2018.

Stack sorting with increasing and decreasing stacks, G. Cerbai, L. Ferrari, *Permutation Patterns 2018. p. 82-87, Jay Pantone, Darthmouth College, Hanover, NH, USA, 9-13 July 2018.*

Permutation patterns in genome rearrangement problems: the reversal model, G. Cerbai, L. Ferrari, *Discrete Applied Mathematics, vol. 279, 2020.*

Stack sorting with restricted stacks, G. Cerbai, A. Claesson, L. Ferrari, *Journal of Combinatorial Theory, Series A, Vol. 173, 2020.*

Stack sorting with increasing and decreasing stacks, G. Cerbai, L. Cioni, L. Ferrari, *The Electronic Journal of Combinatorics, vol. 27 (1), 2020.*

Sorting Cayley permutations with pattern-avoiding machines , G. Cerbai, submitted.

Transport of patterns by Burge transpose, G. Cerbai, A. Claesson, submitted.

Sorting with pattern-avoiding stacks: the 132-machine, G. Cerbai, A. Claesson, L. Ferrari, E. Steingrimsson, *The Electronic Journal of Combinatorics, vol. 27 (3), 2020.*

Catalan and Schroder permutations sorted by two restricted stacks, J.-L. Baril, G. Cerbai, C. Khalil, V. Vajnovszki, submitted.

Seminars Given

June 18, 2018, GASCom2018, Harokopio University, Athens: Permutation patterns in genome rearrangement problems

July 12, 2018, PP2018, Dartmouth College: Stack sorting with increasing and decreasing stacks

October 18, 2018, University of Florence: Permutation patterns in stack sorting and genome rearrangement problems

February 7, 2019, University of Florence: Stack sorting using pattern-avoiding stacks

May 9, 2019, University of Iceland: Stack sorting with pattern-avoding stacks: first results and future directions

June 18, 2019, at PP2019, University of Zurich: Sorting permutations with pattern-avoiding stacks

November 27, 2019, University of Florence: Transporting patterns from ascent sequences to Fishburn permutations

June 24, 2020, at PP2020, virtual talk: Permutations sortable by two restricted stacks: Catalan and Schröder cases

Conferences Attended

June 29-July 5, 2014, Rogla: IV PhD summer school in discrete mathematics and symmetries of graphs and networks

June 18-20, 2018, Athens: GASCom2018, on random generation of combinatorial structures

July 9-13, 2018, Dartmouth College: PP2018, on patterns in permutations and other combinatorial objects

June 13-15, 2019, Zurich: Pre-conference Workshop of PP2019

June 17-21, 2019, Zurich: PP2019, on patterns in permutations and other combinatorial objects

June 22-24, 2020: PP2020, on patterns in permutations and other combinatorial objects (virtual conference)

Research Grants

INdAM GNCS2018: Member, project "*Proprietà combinatorie e rilevamento di pattern in strutture discrete lineari e bidimensionali*",
P.I. Marcella Anselmo.

INdAM, GNCS2019: Member, project "*Studio di proprietà combinatoriche di linguaggi formali ispirate dalla biologia e da strutture bidimensionali*",
P.I. Maria Serafina Madonia.

INdAM, GNCS2020: Member, project "*Combinatoria delle permutazioni, delle parole e dei grafi: algoritmi e applicazioni*",
P.I. Luca Ferrari".

CRF2018: Member, grant of the "Fondazione della Cassa di Risparmio di Firenze", project: "Rilevamento di pattern: applicazioni a memorizzazione basata sul DNA, evoluzione del genoma, scelta sociale",
P.I. Luca Ferrari

Miscellanea

Computing Skills: Python, MatLab, C+

Language: English (B2/C1), Italian (native)