

Jeff Giliberti

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Education

Swiss Federal Institute of Technology Zurich (ETH Zurich)

Sep 2019 - Sep 2022

MSc in Computer Science – GPA: 5.77/6.0

- Core Areas: Distributed, Randomized, Approximation, and Online Algorithms, Combinatorial Optimization, Combinatorics.

University of Genoa

Sep 2016 - Jul 2019

BSc in Computer Science and Engineering – Final Grade: 110/110 *summa cum laude*, GPA: 29/30

- School of Advanced Studies of the University of Genoa: Participated in highly-selective (top 3%) additional program providing complementary technical, scientific, and business courses (80h/year).

Publications

M. Fischer, J. Giliberti and C. Grunau. **Improved Deterministic Connectivity in Massively Parallel Computation**. *International Symposium on Distributed Computing (DISC)*, 2022. (Acceptance ratio: 28%)

[[Arxiv](#), [DOI](#)]

J. Giliberti. **Deterministic Massively Parallel Algorithms for Graph Problems**. *Master Thesis, ETH Zurich*, 2022.

[[DOI](#)]

J. Giliberti and A. Karrenbauer. **Improved Online Algorithm for Fractional Knapsack in the Random Order Model**. *Workshop on Approximation and Online Algorithms (WAOA)*, 2021. (Acceptance ratio: 50%)

[[Arxiv](#), [DOI](#), [Talk](#), [Slides](#)]

Preprints

M. Fischer, J. Giliberti and C. Grunau. **Deterministic Massively Parallel Symmetry Breaking for Sparse Graphs**. (To be submitted to *PODC 2023*).

[[Arxiv](#)]

Research Experience

Amazon, Luxembourg

Oct 2022 - Mar 2023

Applied Research Scientist Intern

Supervisors: Dr. Ugo Rosolia and Dr. Georgios Paschos

- Design Mixed Integer Program (MIP) that schedules millions of packages to automate operations of transportation network's centers using Xpress optimizer while improving code modularization in Python.
- Introduce feedback-loop simulation between MIP and simulator to test heuristics using historical data.

Swiss Federal Institute of Technology Zurich (ETH Zurich)

Mar 2022 - Sep 2022

Master's Thesis: "Deterministic Massively Parallel Algorithms for Graph Problems"

Advisors: Prof. Mohsen Ghaffari, Dr. Manuela Fischer, and Christoph Grunau

- Designed deterministic parallel algorithms for four basic graph problems with improved computational complexities, up to exponentially in runtime and polynomially in memory and computation.
- Developed randomized algorithms based on bounded independence along with derandomization approaches specifically tailored to strongly sublinear memory setting and sparse graphs.

Max Planck Institute for Informatics, Saarbrücken

Apr 2021 - Jun 2021

Research Assistant

Supervisor: Dr. Andreas Karrenbauer

- Devised a novel algorithm for the online fractional knapsack problem in the random order model that improves the best known competitive ratio from 9.37 to 4.39 (113%), leading to a publication.
- Worked on intricate probabilistic analysis, combinatorial arguments, and parameter optimization.

University of Genoa

Mar 2019 - Jun 2019

Bachelor's Thesis: "Artificial Intelligence Methodologies Applied to Lecturer Scheduling Problem"

Advisor: Prof. Marco Maratea

- Encoded a scheduling problem given in natural language on university-wide lecturer assignments as a constraint satisfaction problem by applying automated reasoning and knowledge representation techniques.
- Performed encoding evaluation using Answer Set Programming (Clingo) on a 5k dataset.

Teaching	<p>Teaching Assistant for "Algorithms, Probability, and Computing" at ETHZ ↗ <i>Fall 2020, Fall 2021</i></p> <ul style="list-style-type: none"> • Taught eight recitation classes per semester with 30+ third-year students on Linear Programming (2020) and Parallel Algorithms (2021). Assisted in preparing, monitoring and correcting 120+ assignments and exams.
Industry Experience	<p>Facebook (Meta), London <i>Aug 2021 - Nov 2021</i></p> <p><i>Software Engineer Intern</i></p> <ul style="list-style-type: none"> • Interned at Meta's escalation events team. Built a distributed, synchronous infrastructure to automate the execution of custom scripts in response to specific alerts from the hundreds of millions processed per day. • Implemented, tested, and deployed the distributed service in C++17, Thrift and Python. <p>Amazon, Edinburgh <i>Jul 2020 - Sep 2020</i></p> <p><i>Software Development Engineer Intern</i></p> <ul style="list-style-type: none"> • Joined the performance team responsible for global talent development products across Amazon. Introduced recommended actions in the form of notifications to help managers drive growth in a timely manner. • Coded the feature in Java and designed AWS infrastructure linking Lambda to external API and DynamoDB.
Honors	<p>First Ascent 2022. Awarded by Bending Spoons to top 20 Italian CS students out of over 500 applicants.</p> <p>University of Genoa Scholarship 2017 - 2019. Ranked 2nd in a class of 120+ students for three years.</p> <p>Honorable Mention, ICPC SWERC 2018. European Programming Competition for university teams.</p> <p>Bronze Medal, Italian Olympiad in Informatics 2015. Ranked 16th nationally out of 20,000+ students.</p>
Academic Service	<p>External reviewer for SWAT 2022.</p>
Leadership Experience	<p>Lead, Google Developer Student Club at ETH Zürich ↗ <i>Aug 2021 - Aug 2023</i></p> <ul style="list-style-type: none"> • Story featured on Google Developers Europe Blog (top 1%) [article]. • Recruited and led a team of over 30 co-organizers in these two years and created onboarding materials. • Established the club by increasing memberships from around 100 to over 1100 in one year by organizing 45+ events featuring leading experts and scientists with up to 180 attendees and 2900+ registrations in total. • Attracted four new sponsors worth CHF 9,500, collaborated with 9 student groups, and created content for promotional campaigns across various channels and platforms. • Event samples: Panel on Ph.D. in CS ↗, Graph Mining at Google ↗, Network Optimization at Amazon ↗. <p>Student Representative, University of Genoa <i>Mar 2017 - Mar 2019</i></p> <ul style="list-style-type: none"> • Elected as one of six representatives to the Curriculum and Department Board to represent 1200+ students. • Liaised with senior academics and school administration to improve program quality and organization. <p>Volunteer, Salesian Institute Don Bosco Cairo, Egypt <i>Jul - Aug 2018</i></p> <ul style="list-style-type: none"> • Participated in educational project for a month, teaching Italian and organizing activities for 100+ teens.
Academic Projects	<p>Research in NLU: Tweet sentiment classifier achieving ~90% accuracy (Py, Tensorflow). [code, report]</p> <p>Advanced Programming Techniques: Auction site back-end component in C#. [code]</p> <p>Web Application Development: Modern website using PHP, JS, Bootstrap, and MySQL. [code]</p> <p>Multithreading in C: Task scheduler simulator for multi-core processor. [code]</p>
Courses, Workshops, Conferences	<p>36th International Symposium on Distributed Computing (DISC 2022), virtually. ↗</p> <p>2022 ACM Symposium on Principles of Distributed Computing (PODC), Salerno, Italy. ↗</p> <p>ALGO 2021 hosting ESA, WAOA, and other specialized algorithmic conferences, virtually. ↗</p> <p>The Cornell, Maryland, Max Planck Pre-doctoral Research School 2021, virtually. ↗</p> <p>Job University Matching Project 2016 - 2019 at the University Residence Delle Peschiere, Genoa, Italy. ↗</p> <p>Machine Learning Crash Course 2019 by IIT, MIT, UniGe in Genoa, Italy. ↗</p> <p>21st International Interdisciplinary Seminar (IIS 2019) by Netherhall House, London, UK. ↗</p> <p>19th International IESE Business Summer School 2017, Palermo, Italy.</p>