



Antonio De Caro, Ph.D.

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About Me

I am a PhD student in Computer Science at the University of Salerno, specializing in Graph Analytics on GPUs and heterogeneous programming using SYCL. Moreover, my research focuses on optimizing performance and energy efficiency through GPU frequency scaling. I hold a Bachelor's and a Master's degree in Computer Science, which included an Erasmus thesis in Sweden. Passionate about technology, science, and continuous learning, I also enjoy music, gaming, and exploring creative ways to complement my analytical mindset.

Employment History

- 2023 📌 **Research Assistant** at University of Salerno
- 2022 – now 📌 **Assistant Lecturer.** University of Salerno, Computer Science Department, Fundamentals of Algorithm Design, Bachelor Degree.

Accademic Service

- 2025 📌 **Peer Review** for *Future Generation Computer Systems (FGCS)* journal.


Education

- 2023 – now 📌 **Ph.D., University of Salerno** in High-Performance Computing.
Research Focus: *High-Performance Graph Analytics on Heterogeneous GPUs*
- 2020 – 2023 📌 **Master's Degree in Computer Science** at University of Salerno.
Thesis title: *Developing Educational Serious Games via a Cloud Solution.*
Supervisor: *Vittorio Scarano, University of Salerno and Per Backlund, University of Skövde*
Grade: *110/110 cum laude*
- 2017 – 2020 📌 **Bachelor's Degree in Computer Science** at University of Salerno.
Thesis title: *Java Implementation of Efficient Algorithms for Classifying Large Datasets*
Supervisor: *Annalisa De Bonis, University of Salerno*
Grade: *110/110 cum laude*

Research Publications

Conference Proceedings

- 1 L. Carpentieri, A. De Caro, M. S. Beni, K. Fan, and B. Cosenza, "Phase-based frequency scaling for energy-efficient heterogeneous computing," in *2025 IEEE International Parallel and Distributed Processing Symposium (IPDPS)*, 2025, pp. 824–836. 📄 DOI: 10.1109/IPDPS64566.2025.00078.
- 2 A. De Caro, G. Cordasco, and B. Cosenza, "SYgraph: A Portable Heterogeneous Graph Analytics Framework for GPU," in *Proceedings of the 54th International Conference on Parallel Processing*, ser. ICPP '25, San Diego, CA, USA: Association for Computing Machinery, 2025, ISBN: 9798400720741. 📄 DOI: 10.1145/3754598.3754615.

- 3 A. De Caro, G. Cordasco, F. Ficarelli, and B. Cosenza, "Sigmo: High-throughput batched subgraph isomorphism on gpus for molecular matching," in *Proceedings of the International Conference for High Performance Computing, Networking, Storage and Analysis*, ser. SC '25, Association for Computing Machinery, 2025, pp. 1524–1538, ISBN: 9798400714665.  DOI: 10.1145/3712285.3759782.

Skills

Coding	■ C++/C, Python, Bash, Golang, Java
Frameworks	■ SYCL, CUDA, OpenMP, MPI
Misc.	■ Academic research, teaching, and consultation
Languages	■ <i>English</i> C1 (Advanced), <i>Italian</i> Native

Miscellaneous Experience

- 2025 ■ **SYCL 101**. Delivered a training course on SYCL programming at CINECA in Bologna, focusing on heterogeneous computing and practical GPU development workflows.
- 2022 ■ **Erasmus+**. Master's Thesis Project developed in collaboration with University of Skövde, Sweden.

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