Greta Dolcetti

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in **LinkedIn:** https://www.linkedin.com/in/greta-dolcetti-2b2227185/

👤 **Google Scholar:** https://scholar.google.com/citations?user=Wad3G5MAAAAJ&hl=it&oi=ao

EDUCATION AND TRAINING

Ph.D. Student in Computer Science
Ca' Foscari University of Venice [09/2023 – Current]

City: Venice | **Country:** Italy

Master Degree in Computer Science
University of Parma [09/2021 – 13/07/2023]

City: Parma | **Country:** Italy | **Final grade:** 110L/110 | **Level in EQF:** EQF level 7 | **Thesis:** Abstract Compilation Techniques for Static Analysis

Advisor: Prof. Enea Zaffanella

The main contribution of the thesis was the implementation of two instances of abstract compilation techniques in the Crab/Clam static analysis framework: the split operator and the likely unconstrained variable oracles.
The former provides a new operator and approach for the filter operation on a predicate on abstract domains, avoiding the inefficiencies of the default procedure, and improving the efficiency of the analysis without losing precision.
The latter proposes four different implementations of an oracle whose purpose is to suggest which variables are likely to be unconstrained in the CFG's statements. By systematically propagating the guessed lack of information, the oracle guides the simplification of the abstract program which leads to remarkable speedups.

Bachelor Degree in Computer Science
University of Parma [09/2018 – 09/2021]

City: Parma | **Country:** Italy | **Final grade:** 110/110 | **Level in EQF:** EQF level 6 | **Thesis:** Development of an interface for Explainable AI for CAT scan analysis

Advisor: Prof. Alessandro Dal Palù

The main contribution of the thesis is the implementation of a framework that allows the user to understand clearly, in natural language, the motivations behind the result (i.e., the arteries retrieved inside the CAT scan and their connections) produced by the Answer Set Programming reasoner. The framework allows the user to also add new rules, expressed in natural language and then translated in AnsProlog, to the knowledge base used by the reasoner.

High School Diploma (Maturità Classica)
Liceo Classico Enrico Fermi [09/2013 – 06/2018]

City: Salò | **Country:** Italy | **Final grade:** 89/100

WORK EXPERIENCE

Research Scolarship
University of Parma [12/2021 – 03/2022]

City: Parma | **Country:** Italy

Research by constraint programming and molecular modeling methods of possible protein mutations of SARS-CoV-2 virus.

TEACHING

[08/2023 – 09/2023]
Teaching Assistant for "Ragazze Digitali" project

26 hours.

[09/2022 – 06/2023]

Teaching Assistant for the "Fondamenti di Programmazione A+B" Bachelor course in the Computer Science B.Sc., University of Parma, Italy

48 hours.
Prof. Arceri Vincenzo.

[09/2022 – 06/2023]
Tutoring for Students in the Computer Science B.Sc., University of Parma, Italy

48 hours.

[06/2022 – 07/2022]
Teaching Assistant for "Ragazze Digitali" project

70 hours.

PUBLICATIONS

[2024]
Dolcetti G., Cortesi A., Urban C. & Zaffanella E. Towards a High Level Linter for Data Science. Proceedings of 10th International Workshop on Numerical and Symbolic Abstract Domains (NSAD 2024), 22 October 2024, Pasadena, California, United States. [Proceedings to be published]

[2024]
Arceri V., Merenda S. M., Dolcetti G., Negrini L., Olivieri L., & Zaffanella E. Towards a Sound Construction of EVM Bytecode Control-flow Graphs. Proceedings of Formal Techniques for Java-like Programs (FTfJP 2024), 20 September 2024, Vienna, Austria. [Proceedings to be published]

[2024]
Arceri V., Dolcetti G. & Zaffanella E. (2024). Speeding up Static Analysis with the Split Operator. International Journal on Software Tools for Technology Transfer, Special Issue for SOAP 2023. [Accepted but yet to be published]

[2023]
Arceri V., Dolcetti G. & Zaffanella E. Speeding up Static Analysis with the Split Operator. Proceedings of 12th ACM SIGPLAN International Workshop on the State of the Art in Program Analysis, SOAP@PLDI 2023, June 17, 2023, Orlando, Florida, United States. DOI: https://doi.org/10.1145/3589250.3596141

[2023]
Arceri V., Dolcetti G. & Zaffanella E. Unconstrained Variable Oracles for Faster Static Analyses. Proceedings of 30th Static Analysis Symposium, SAS 2023, Sun 22 - Tue 24 October 2023 Cascais, Portugal. DOI: https://doi.org/10.1007/978-3-031-44245-2_5

[2023]
Cozzini, P., Agosta, F., Dolcetti, G., & Dal Palù, A. (2023). A Computational Workflow to Predict Biological Target Mutations: The Spike Glycoprotein Case Study. Molecules, 28(20), 7082. DOI: https://doi.org/10.3390/molecules28207082

[2022]
Cozzini, P., Agosta, F., Dolcetti, G., & Righi, G. (2022). How a Blockchain Approach Can Improve Data Reliability in the COVID-19 Pandemic. ACS Medicinal Chemistry Letters, 13(4), 517-519, DOI: https://doi.org/10.1021/acsmedchemlett.2c00077

CONFERENCES AND SEMINARS

[22/10/2024] Pasadena, California, United States
10th International Workshop on Numerical and Symbolic Abstract Domains (NSAD 2024) [Participant + Talk]

[20/09/2024] Vienna, Austria
Formal Techniques for Java-like Programs (FTfJP 2024) [Paper Accepted]

[06/06/2024 – 07/06/2024] Venice, Italy
3rd Challenges of Software Verification Symposium (CSV 2024) [Participant + Presentation Accepted]

[22/10/2023 – 24/10/2023] Cascais, Portugal

30th Static Analysis Symposium (SAS 2023) [Participant + Talk]

[17/06/2023 – 21/06/2023] Orlando, Florida, United States
44th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2023) [Participant]

[18/06/2023] Orlando, Florida, United States
Programming Language Mentoring Workshop (PLMW@PLDI 2023) [Participant]

[17/06/2023] Orlando, Florida, United States
12th ACM SIGPLAN International Workshop on the State Of the Art in Program Analysis (SOAP 2023) [Participant + Talk]

[25/05/2023 – 26/05/2023] Venice, Italy
2nd Challenges of Software Verification Symposium (CSV 2023) [Participant]

HONOURS AND AWARDS

Programming Language Mentoring Workshop (PLMW@PLDI 2023)
Scolarship

2nd Challenges of Software Verification Symposium (CSV 2023)
Invited Conference

3rd Challenges of Software Verification Symposium (CSV 2024)
Invited Conference

SOCIAL AND POLITICAL ACTIVITIES

[05/2021 – 05/2023]
Students Representative of the Computer Science Bachelor and Master Degrees @ Univeristy of Parma

TALKS

[22/10/2024]
10th International Workshop on Numerical and Symbolic Abstract Domains (NSAD 2024)

Dolcetti G., Cortesi A., Urban C. & Zaffanella E. Towards a High Level Linter for Data Science.

[22/10/2023 – 24/10/2023]
30th Static Analysis Symposium (SAS 2023)

Arceri V., Dolcetti G. & Zaffanella E. Unconstrained Variable Oracles for Faster Static Analyses

[17/06/2023]
12th ACM SIGPLAN International Workshop on the State Of the Art in Program Analysis (SOAP 2023)

Arceri V., Dolcetti G. & Zaffanella E. Speeding up Static Analysis with the Split Operator.

COMMUNITY SERVICE

[2024]
Artifact Evaluation Committee for European Conference on Object-Oriented Programming (ECOOP 2024) Mon 16 - Fri 20 September 2024 Vienna, Austria

[2024]
Artifact Evaluation Committee for 22nd International Symposium on Automated Technology for Verification and Analysis (ATVA) October 21-24, 2024, Kyoto, Japan

[2024]
Artifact Evaluation Committee for 31st Static Analysis Symposium (SAS 2024) Sun 20 - Fri 25 October 2024 Pasadena, California, United States

[2024]

Program Committee and Reviewer for The 2nd Workshop on AI for Digital Twins and Cyber-physical Applications (AI4DT&CP@IJCAI2024), August 5 2024, Jeju, South Korea

[22/10/2023 – 27/10/2023]
Student Volunteering at ACM SIGPLAN International Conference on Systems, Programming, Languages and Applications: Software for Humanity (SPLASH) 2023

[17/06/2023 – 21/06/2023]
Student Volunteering at 44th ACM SIGPLAN Conference on Programming Language Design and Implementation (PLDI 2023)

Orlando, Florida, United States

[2023]
Artifact Reviewer for 30th Static Analysis Symposium (SAS 2023), October 22 -24, 2023, Cascais, Portugal

[2023]
Reviewer for 16th International Conference on Knowledge Science, Engineering and Management (KSEM 2023) August 16-18, 2023, Guangzhou, China

TOOLS AND SOFTWARE

Integration of PPLite domains in Crab/Clam static analysis framework

Links: https://github.com/seahorn/crab/pull/52 | https://github.com/seahorn/crab

Integration of the decoupling feature and domains in Crab/Clam static analysis framework

Links: https://github.com/seahorn/clam/tree/dev14-decoupling | https://github.com/seahorn/crab/tree/dev-decoupling | https://github.com/seahorn/crab/commit/cdd868c27a299da834026cfda027effb32d06408

Implementation of split operator and variable oracles in Crab/Clam static analysis framework

The code is currently closed-source, but it will be released soon.

Implementation of likely unconstrined variable oracles in Crab/Clam static analysis framework

The code is currently closed-source, but it will be released soon.

Implementation of a high level linter for data science based on abstract data types in Lyra.

The code is currently closed-source, but it will be released soon.

Link: https://github.com/caterinaurban/Lyra

SUPPLEMENTARY EDUCATION

[01/09/2024 – 07/09/2024]
1st Lipari Summer School on Abstract Interpretation (AbsInt 2024)

[06/08/2024 – 17/08/2024]
Marktoberdorf Summer School 2024 (MOD 2024)

[10/06/2024 – 14/06/2024]
7th Advanced Course on Data Science & Machine Learning (ACDL 2024)

[03/09/2023 – 09/09/2023]
5th Programming Language Implementation Summer School (PLISS 2023)

DIGITAL SKILLS

LaTeX / Linux / Python / C++ / SQL / NumPy / Pandas / Matplotlib / Seaborn / PyTorch / Java / Docker / Kubernetes / Flask / Artificial Intelligence / Machine Learning / Git / Scikit-Learn

LANGUAGE SKILLS

Mother tongue(s): Italian

Other language(s):

English

LISTENING B2 **READING** B2 **WRITING** B2

SPOKEN PRODUCTION B2 **SPOKEN INTERACTION** B2

Levels: A1 and A2: Basic user; B1 and B2: Independent user; C1 and C2: Proficient user

DRIVING LICENCE

Driving Licence: B