Caio Batista de Melo

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Education

University of California, Irvine — **Irvine, CA**
Ph.D. in Computer Science, GPA: 3.88/4.0 — *Sept. 2018 – present*
Awarded Full Financial Support for Duration of Program
Advised by Prof. Nikil Dutt

University of Brasília — **Brasília, Brazil**
M.Sc. in Informatics, GPA: 4.60/5.0 — *Aug. 2017 – Aug. 2018*
Thesis: Characterization of Implied Scenarios as Families of Common Behavior
Advised by Prof. Genaína Rodrigues

University of Brasília — **Brasília, Brazil**
B.Sc. in Computer Science, GPA: 3.74/5.0 — *March 2012 – July 2017*
Monograph: Defining Semantic Relationships Between Families of Implied Scenarios
Original Title (Portuguese): Definindo Relações Semânticas Entre Famílias de Cenários Implícitos
Advised by Prof. Genaína Rodrigues

Fordham University — **New York, NY**
Visiting student, GPA: 3.79/4.0 — *July 2015 – Aug. 2016*
Part of the Science Without Borders study abroad program

Research & Work Experience

Dutt Research Group – University of California, Irvine — **Irvine, CA**
Graduate Student Researcher — *Sept. 2018 – present*

I am working with Prof. Nikil Dutt on the Information Processing Factory (IPF) project. My current project is to explore how applications behave when emergent behaviors are present, and how we can detect, reason, and react to these unexpected system actions. Our goal is to enable systems to be proactive about these emerging behaviors so that they can maintain safe execution during runtime.

Cal/Amp — **Irvine, CA**
IT/Product Security Intern — *June 2019 – Sept. 2019*
Worked with the Information Security team in different projects that aim to secure the company's network and assets. Furthermore, I also took lead in a project that tried to detect anomalies to facilitate the visibility of uncommon behaviors on the network.

Software Engineering Lab. – University of Brasília — **Brasília, Brazil**
Graduate Research Assistant — *Aug. 2017 – Aug. 2018*
Undergraduate Research Assistant — *Aug. 2016 – July 2017*

Conducted research with Prof. Genaína Rodrigues on reliable systems, by exploring different ways to analyze implied scenarios in distributed systems. Our proposed methodology uses clustering techniques, with a distance metric based on the Smith-Waterman algorithm. I wrote a senior monograph and a master's thesis on the subject, and we published our results in the Journal of Systems and Software.

Lab. of Informatics and Data Mining – Fordham University — **New York, NY**
Undergraduate Research Assistant — *June 2016 – Aug. 2016*
Worked on the WATSHERE project, led by Prof. Frank Hsu. We used the IBM Watson framework to provide curated information for students' parents and staff of the P.S. 85 in the Bronx. We published the results of this work at the 2017 Global Business and Technology Association conference.

Computer Science Department − University of Brasília Brasília, Brazil
Java Development Intern *Feb. 2015 − July 2015*
Helped to develop teaching tools for the Introduction to Programming class. Worked on the development of a tool that randomized exam questions among students, where the instructors were able to embed the problem set into the executable.

Teaching Experience

University of California, Irvine

Course	Quarter	Students	Mean Overall Evaluation
Intro to Programming	Winter '20	38	8.94/9 (81% responses)
Intro to Programming	Fall '19	72	8.68/9 (75% responses)
Intro to Programming	Spring '19	84	8.47/9 (54% responses)
Intro to Programming	Winter '19	80	8.52/9 (41% responses)
Intro to Programming	Fall '18	89	8.25/9 (69% responses)

Teaching Assistant
ICS 31, Intro to Programming *Fall '18 − Spring '20*
Responsible for holding lab sessions, assisting students with assignments, writing practice exam and problems, proctoring, and grading exams.

University of Brasília

Teaching Assistant
CIC 113913, Introduction to Computer Science *Spring '18*
Taught lectures, proctored exams, and graded students' projects.

Undergraduate Tutor
CIC 113913, Introduction to Computer Science *Fall '12 − Spring '14, Spring '16*
Proctored exams and helped students with homework questions.

CIC 116785, Objected Oriented Programming *Spring '14*
Graded students' projects and assisted students with their assignments.

Publications

Journal Articles

[J1]Caio Batista de Melo, André Luiz Fernandes Cançado, and Genaína Nunes Rodrigues. Characterization of implied scenarios as families of common behavior. *Journal of Systems and Software*, 158:110425, 2019.

Peer-reviewed Conferences

[C1]Eberle A. Rambo, Thawra Kadeed, Rolf Ernst, Minjun Seo, Fadi Kurdahi, Bryan Donyanavard, Caio Batista de Melo, Biswadip Maity, Kasra Moazzemi, Kenneth Stewart, Saehanseul Yi, Amir M. Rahmani, Nikil Dutt, Florian Maurer, Nguyen Anh Vu Doan, Anmol Surhonne, Thomas Wild, and Andreas Herkersdorf. The Information Processing Factory: A Paradigm for Life Cycle Management of Dependable Systems. In *IEEE/ACM/IFIP International Conference on Hardware/Software Codesign and System Synthesis (CODES+ISSS'19)*, New York, New York, USA, Oct 2019.

[C2]Anna Poulakas, Alon Yoeli, Sebastian Deossa, Caio Batista de Melo, D. Frank Hsu, Dawn J. Adams, Cesarina Javier, and Anita V. Batisti. WATSHERE: A Watson Cognitive System to Navigate Social/Health Resources for Public Schools. In *proceedings of Global Business and Technology Association Conference*, pages 813 − 823, Vienna, Austria, July 2017.

Book Chapters...

[BC1]Bryan Donyanavard, Tiago Mück, Kasra Moazzemi, Biswadip Maity, <u>Caio Batista de Melo</u>, Kenneth Stewart, Saehanseul Yi, Amir M. Rahmani, and Nikil Dutt. Reflecting on Self-aware Systems-on-Chip. In *A Journey of Embedded and Cyber-Physical Systems*. Springer, 2020.

Technical Reports..

[TR1]Eberle A. Rambo, Bryan Donyanavard, Minjun Seo, Florian Maurer, Thawra Kadeed, <u>Caio B. de Melo</u>, Biswadip Maity, Anmol Surhonne, Andreas Herkersdorf, Fadi J. Kurdahi, Nikil D. Dutt, and Rolf Ernst. The Information Processing Factory: Organization, Terminology, and Definitions. *CoRR*, abs/1907.01578, 2019.

Skills

Programming Languages..

- C, C++, Java, and Python.

Spoken Languages..

- Native fluency: English, Portuguese;
- Basic communication: Spanish.

Honors and Awards

UCI Thank a Teacher Recipient 2020
Awarded by the Division of Teaching Excellence & Innovation of the University of California, Irvine, to select instructors and teaching assistants that are nominated by their students.

UCI CIRTL Associate Level 2019
Awarded by the Graduate Division at the University of California, Irvine, in recognition of successful completions of all requirements for UCI CIRTL (Center for the Integration of Research, Teaching and Learning) Associate level.

UCI Course Design Certificate Program 2019
Awarded by the Division of Teaching Excellence & Innovation of the University of California, Irvine, in recognition of advanced training in student-centered course design.

UCI Certificate of Teaching Excellence 2019
Awarded by the Division of Teaching Excellence & Innovation of the University of California, Irvine, in recognition of advanced training in evidence-based pedagogy.

DAC A. Richard Newton Young Student Fellow 2019
Awarded by the Design Automation Conference (DAC) to encourage students to join the electronic design automation field and/or consider graduate studies in this field.

UCI Dean's Award 2018–2019
Scholarship awarded by the University of California, Irvine, to first-year Ph.D. students in recognition of outstanding research potential.

CAPES Master's Scholarship 2017–2018
Awarded by the Brazilian Coordination for the Improvement of Higher Education Personnel (CAPES), to promote the training of high-level human resources through scholarships for graduate students.

CNPq Scientific Initiation Scholarship 2016–2017
Awarded by the Brazilian National Council for Scientific and Technological Development (CNPq), to encourage new potential talents among undergraduate students through their participation in research.

Fordham University's Student Ambassador 2016
Appointed as university ambassador at the 2016 International Conference on Cyber Security (ICCS), where I helped coordinate keynote speeches.

Brazil Scientific Mobility Program 2015–2016
Awarded a scholarship to pursue one year of studies at Fordham University, jointly sponsored by CAPES and the Institute of International Education (IIE).

Presentations

- Kenneth Stewart, <u>Caio Batista de Melo</u>, Saehanseul Yi, Nikil Dutt, *Self-Aware Systems-On-Chip*, 1st UCI/UCR/UPHF International Workshop on Cyber-Physical Systems and their Applications in Intelligent and Connected Transportation System (Poster), 2019

- Kenneth Stewart, <u>Caio Batista de Melo</u>, Saehanseul Yi, Nikil Dutt, *Self-Aware Systems-On-Chip*, Richard Newton Young Fellow Forum at the Design Automation Conference (Poster), 2019

- Kenneth Stewart, <u>Caio Batista de Melo</u>, Saehanseul Yi, Nikil Dutt, *The Information Processing Factory*, Richard Newton Young Fellow Forum at the Design Automation Conference (Poster), 2019

- <u>Caio Batista de Melo</u>, Genaína Rodrigues, *Implied Scenario Detection Oriented Dependability Analysis*, joint 23rd University of Brasília/14th Federal District Undergraduate Research Workshop (Poster), 2017

References

- Available upon request.