

Cristiano Politowski

M.Sc. IN SOFTWARE ENGINEERING PROCESSES · PH.D. IN SOFTWARE TESTING APPLIED TO VIDEO GAMES

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Summary

I am a Postdoctoral researcher working with professor Ghizlane El-Boussaidi at the Département de génie logiciel et des TI at École de Technologie Supérieure (ÉTS), Montréal, Québec, Canada. I finished my Ph.D., supervised by professor Yann-Gaël Guéhéneuc and co-supervised by professor Fabio Petrillo, at the Department of Computer Science and Software Engineering of Concordia University, Montréal, Québec, Canada.

Within Software Engineering, I am interested in Software Testing (end-to-end tests), Deep Reinforcement Learning (applied to game testing), Video Game Development (processes and anti-patterns), and Software Architecture (event-driven frameworks and game engines). My daily tasks include planning and conducting research, supporting graduate students in their projects, and helping my academic community, for example by reviewing manuscripts for conferences and journals.

Education

Ph.D. in Software Engineering

Montréal, Canada

CONCORDIA UNIVERSITY

2022

- Software testing techniques, end-to-end test, deep reinforcement learning, and video game development.
- Thesis title: *Improving Video Game Balance Testing Using Autonomous Agents*
- Supervisors: professor Yann-Gaël Guéhéneuc and professor Fabio Petrillo

M.S. in Computer Science

Santa Maria, Brazil

UNIVERSIDADE FEDERAL DE SANTA MARIA (UFSM)

2017

- Software development processes, video game development, recommendation systems
- Supervisor: Lisandra Manzoni Fontoura

B.S. in Computer Science

Santa Rosa, Brazil

UNIVERSIDADE REGIONAL DO NOROESTE DO ESTADO DO RIO GRANDE DO SUL (UNIJIU)

2014

- Software product line and domain-specific languages
- Supervisor: Fabricia C. Roos Frantz

Academic Experience

Postdoctoral Researcher

Montréal, Canada

ÉCOLE DE TECHNOLOGIE SUPÉRIEURE (ÉTS)

Now

- Requirement engineering, software architecture, and software testing
- Supervisor: Ghizlane El-Boussaidi

Publications

JOURNALS

- 2021 **Game Industry Problems: An Extensive Analysis of the Gray Literature.** Cristiano Politowski and Fabio Petrillo and Gabriel C. Ullmann and Yann-Gaël Guéhéneuc. *ELSEVIER - Information and Software Technology*. 10.1016/j.infsof.2021.106538
- 2021 **What Skills Do IT Companies Look for in New Developers? A Study with Stack Overflow Jobs.** João Eduardo Montandon and Cristiano Politowski and Luciana Lourdes Silva and Marco Tulio Valente and Fabio Petrillo and Yann-Gaël Guéhéneuc. *ELSEVIER - Information and Software Technology*. 10.1016/j.infsof.2020.106429
- 2020 **A Large Scale Empirical Study of the Impact of Spaghetti Code and Blob Anti-Patterns on Program Comprehension.** Cristiano Politowski and Foutse Khomh and Simone Romano and Giuseppe Scanniello and Fabio Petrillo and Guéhéneuc, Yann-Gaël and Maiga, Abdou. *ELSEVIER - Information and Software Technology*. 10.1016/j.infsof.2020.106278
- 2018 **Are Game Engines Software Frameworks? A Three-Perspective Study.** Cristiano Politowski and Fabio Petrillo and João Eduardo Montandon and Marco Tulio Valente and Yann-Gaël Guéhéneuc. *ELSEVIER - Journal of Systems and Software*. 10.1016/j.jss.2020.110846
- 2018 **Learning from the Past: A Process Recommendation System for Video Game Projects Using Postmortems Experiences.** Cristiano Politowski and Lisandra M. Fontoura and Fabio Petrillo and Yann-Gaël Guéhéneuc. *ELSEVIER - Information and Software Technology*. 10.1016/j.infsof.2018.04.003

CONFERENCES

- 2021 **A Survey of Video Game Testing.** Cristiano Politowski and Fabio Petrillo and Yann-Gael Gueheneuc. *2021 IEEE/ACM International Conference on Automation of Software Test (AST)*. 10.1109/AST52587.2021.00018
- 2020 **Dataset of Video Game Development Problems.** Cristiano Politowski and Fabio Petrillo and Gabriel C. Ullmann and Josias de Andrade Werly and Yann-Gaël Guéhéneuc. *Proceedings of the 17th International Conference on Mining Software Repositories*. 10.1145/3379597.3387486

WORKSHOPS

- 2023 **Assessing Video Game Balance Using Autonomous Agents.** Cristiano Politowski and Fabio Petrillo and Ghizlane El Boussaidi and Gabriel C. Ullmann and Yann-Gael Gueheneuc. *7th International ICSE Workshop on Games and Software Engineering (GAS 2023)*. [submitted]
- 2022 **Towards Automated Video Game Testing: Still a Long Way to Go.** Cristiano Politowski and Yann-Gaël Guéhéneuc and Fabio Petrillo. *2022 IEEE/ACM 6th International Workshop on Games and Software Engineering (GAS)*. 10.1145/3524494.3527627
- 2022 **What Makes a Game High-rated? Towards Factors of Video Game Success.** Gabriel C. Ullmann and Cristiano Politowski and Yann-Gaël Guéhéneuc and Fabio Petrillo. *2022 IEEE/ACM 6th International Workshop on Games and Software Engineering (GAS)*. 10.1145/3524494.3527623
- 2022 **Video Game Project Management Anti-patterns.** Gabriel C. Ullmann and Cristiano Politowski and Yann-Gaël Guéhéneuc and Fabio Petrillo and João Eduardo Montandon. *2022 IEEE/ACM 6th International Workshop on Games and Software Engineering (GAS)*. arXiv:2202.06183
- 2016 **Are the Old Days Gone?: A Survey on Actual Software Engineering Processes in Video Game Industry.** Cristiano Politowski and Lisandra M. Fontoura and Fabio Petrillo and Yann-Gaël Guéhéneuc. *Proceedings of the 5th International Workshop on Games and Software Engineering - GAS'16*. 10.1145/2896958.2896960
- 2022 **A Domain Specific Language for the ARINC 653 Specification.** Ikram Darif and Cristiano Politowski and Ghizlane El Boussaidi and Sègla Kpodjedjo. *The 12th IEEE International Workshop on Software Certification*. 10.1109/ISSREW55968.2022.00073

Honors & Awards

- 2022 **Concordia Accelerator Award**, Concordia University *Montréal, Canada*
- 2021 **Mathematics of Information Technology and Complex Systems (MITACS) Accelerate with Humanitas Solutions**, Verifying and Deploying 5G Cloud Infrastructure for Improved Logistic and Communication in Healthcare Facilities Dealing with COVID-19 Patients *Montréal, Canada*

Industry Experience

- Research Collaborator** *Montréal, Canada*
HUMANITAS (HUMANITAS.IO) *2022*
- Creating a testing pipeline for an existent Px4 auto-pilot stack, using Docker, Unreal Engine, and Python
- Software Developer** *Montréal, Canada*
[STARTUP] BIDGALA (BIDGALA.COM) *2022*
- Taking care of the DevOps tasks for production and development environments (Django and PostgreSQL).
- Software Developer** *Brazil*
[STARTUP] SNAPER *2018*
- Extending the Web server (Nginx) to handle optimized versions of assets (images, CSS, and JS) using embedded scripts (in LUA).
- Software Developer** *Brazil*
[STARTUP] IC1 *2013*
- Maintaining back-end code (Java, Struts 2, and Hibernate) and front-end code (HTML, CSS, and JS)

Program Committees

- 2022 **Workshop Organizer**, The Second International Workshop on Automated Software Engineering for Computer Games (ASE4Games 2022) [2022.ase4games.quest]. A one day workshop held in conjunction with the 37th IEEE/ACM International Conference on Automated Software Engineering (ASE). *Online*
- 2021 **Workshop Organizer**, The First International Workshop on Automated Software Engineering for Computer Games (ASE4Games 2021) [2021.ase4games.quest]. A one day workshop held in conjunction with the 36th IEEE/ACM International Conference on Automated Software Engineering (ASE). *Online*

Teaching Experience

Teaching Assistant (TA)

Montréal, Canada

CONCORDIA UNIVERSITY

2022

- Software Engineering Team Design Project (70h) - Prof. Yann-Gaël Guéhéneuc - Winter term

Teaching Assistant (TA)

Montréal, Canada

CONCORDIA UNIVERSITY

2021

- Software Engineering Team Design Project (70h) - Prof. Yann-Gaël Guéhéneuc - Winter term

Teaching Assistant (TA)

Montréal, Canada

CONCORDIA UNIVERSITY

2020

- Software Architecture & Design I (67h) - Prof. Rodrigo Morales - Fall term

Teaching Assistant (TA)

Montréal, Canada

CONCORDIA UNIVERSITY

2019

- Software Design Methodology (40h) - Prof. Yann-Gaël Guéhéneuc - Winter term
- Software Architecture & Design I (67h) - Prof. Rodrigo Morales - Fall term

Lecturer

Brazil

[TECHNICAL SCHOOL] FUNDAÇÃO EDUCACIONAL MACHADO DE ASSIS

2017

- Object Oriented Programming (Java) and Unified Modelling Language (UML) in a technical computing course.

Media Coverage

- 2021 **The video game industry's problems are mostly due to people, not technology researchers argue.** Text interview. *Concordia University News. Online at shorturl.at/flOPW*

Languages

- Portuguese** Native
English Fluent
French Intermediate
Spanish Intermediate