

**Date Submitted:** 2019-11-13 21:32:09 **Confirmation Number:** 1076459

**Template:** Full CV

### Dr. Fabio Petrillo

Correspondence language: English

Sex: Male

Date of Birth: 3/19

Designated Group: Visible Minority

Canadian Residency Status: Permanent Resident Permanent Residency Start Date: 2013/06/08

Country of Citizenship: Brazil

### **Contact Information**

The primary information is denoted by (\*)

#### **Address**

Home Primary Affiliation (\*)

1192 Rue Lorenzo-Genest ap. 211555, boulevard de l'UniversitéChicoutimi Quebec G7H6N9Chicoutimi Quebec G7H 2B1

Canada Canada

### Telephone

Mobile +1-438-990-9051

Work (\*) +1-438-545-5011 extension: 3714

**Email** 

Personal fabio.petrillo@gmail.com Work (\*) fabio.petrillo@uqac.ca

Website

Personal http://fabiopetrillo.com



### Dr. Fabio Petrillo

# **Language Skills**

Language	Read	Write	Speak	Understand	Peer Review
English	Yes	Yes	Yes	Yes	Yes
French	Yes	Yes	Yes	Yes	Yes
Italian	Yes	No	No	Yes	No
Portuguese	Yes	Yes	Yes	Yes	Yes
Spanish; Castilian	Yes	No	No	Yes	No

### **Degrees**

2017/9 - 2018/6 Post-doctorate, Post-doctorate in Software Engineering, Software Engineering, Concordia

University

Degree Status: Completed

Supervisors: Wahab Hamou-lhadj, 2018/1 - 2018/7; Yann-Gaël Guéhéneuc, 2017/9 -

2018/7

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development, Software (Tools)

Fields of Application: Communication and Information Technologies

2011/7 - 2016/10 Doctorate, PhD of Computer Science, Software Engineering, Universidade Federal Do Rio

Grande Do Sul

Degree Status: Completed

Thesis Title: Swarm debugging: the collective debugging intelligence of the crowd

Supervisors: Marcelo Soares Pimenta, 2011/7 - 2016/10; Carla Maria Dal Sasso Freitas,

2011/7 - 2016/10

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development, Software (Tools)

Fields of Application: Communication and Information Technologies

2014/5 - 2015/12 Certificate, English Certificate, English, Université du Québec à Montréal

Degree Status: Completed

2007/3 - 2009/1 Master's Thesis, Master of Computer Science, Software Engineering, Universidade

Federal Do Rio Grande Do Sul Degree Status: Completed

Thesis Title: Agile practices in development process of electronic games

Supervisors: Marcelo Soares Pimenta, 2017/3 - 2009/1

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development

Fields of Application: Communication and Information Technologies

2003/4 - 2004/8 Diploma, Post-Graduate Diploma, Post-Graduate Diploma Open Source Systems,

Universidade do Vale do Rio Dos Sinos

Degree Status: Completed

Thesis Title: Developping mobile computation on free software

Supervisors: Cristiano André da Costa, 2003/8 - 2004/8

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development

Fields of Application: Communication and Information Technologies

2001/9 - 2002/9 Diploma, Post-Graduate Diploma, Post-Graduate Diploma Networking and Distributed

Systems, Universidade Federal Do Rio Grande Do Sul

Degree Status: Completed

Research Disciplines: Computer Engineering and Software Engineering, Computer

Science

Areas of Research: Distributed and Simultaneous Processing, Network Analysis

(Information)

Fields of Application: Communication and Information Technologies

1997/3 - 2001/1 Bachelor's, Eletrical Engineer, Electrical Engineering, Universidade Federal Do Rio

Grande Do Sul

Degree Status: Completed

Research Disciplines: Electrical Engineering and Electronic Engineering

Fields of Application: Energy

#### **Credentials**

2011/10 Certified Scrum Master, Scrum Alliance

Agile principles and Scrum practices into your world of work takes diligence, patience, and

a commitment to continuous improvement.

# Recognitions

2017/9 - 2018/5 Nomination Gala Méritas 2017-2018 - Meilleur Chargé de Course

École Polytechnique de Montréal

Distinction

Nomination Gala Méritas 2017-2018 - Meilleur Chargé de Cours (one of 3) - Génie

informatique et logiciel pour le cours INF3710, LOG8430 et LOG8371

2016/9 - 2017/5 Nomination Gala Méritas 2016-2017 - Meilleur Enseignant

École Polytechnique de Montréal

Distinction

Cycles supérieurs - Génie informatique et logiciel (one of 5) pour le cours LOG8430

### **User Profile**

Researcher Status: Researcher

Research Career Start Date: 2018/08/01 Engaged in Clinical Research?: No

Key Theory / Methodology: Swarm Debugging Empirical Software Engineering Agile practices and Computer

Games

Research Interests: Software Quality Debugging Log Analytics using Machine Learning Software Architecture

SOA on Cloud Computing Agile Methods Computer Games and Software Engineering

Research Experience Summary: I have worked on Software Quality, and Architecture, Debugging, Computer Games and SE, Service-Oriented Architecture, RESTful analysis on Cloud, and Agile Methods. I have has been recognized as a pioneer and an international reference on Computer Games and Software Engineering, Further, I was the creator of Swarm Debugging, a new collaborative approach to support debugging activities.

Research Specialization Keywords: Empirical Software Engineering, Computer Games, Software Quality, Software Testing, Debugging, Log Analytics, Machine Learning

Technological Applications: Software

Disciplines Trained In: Computer Engineering and Software Engineering, Electrical Engineering and Electronic

Engineering

Research Disciplines: Computer Engineering and Software Engineering, Computer Science

Areas of Research: Computer Systems, Software (Tools), Software Development

Fields of Application: Communication and Information Technologies

# **Employment**

2018/8 Associate Professor

Department of Computer Science and Mathematics, Université du Québec à Chicoutimi

Full-time, Associate Professor Tenure Status: Tenure Track Software engineering professor

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development

Fields of Application: Communication and Information Technologies

2017/9 - 2018/7 Postdoctoral Fellow

Department of Computer Science and Software Engineering, Concordia University

Full-time

Tenure Status: Non Tenure Track Debugging and log analytics practices.

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software (Tools), Software Development

Fields of Application: Communication and Information Technologies

2016/1 - 2017/8 Research Associate

Department of Software Engineering, École Polytechnique de Montréal

Full-time, Lecturer

Tenure Status: Non Tenure Track

Debugging practices (Swarm Debugging)

2001/7 - 2013/5 Software Engineer, manager, internal consultant

Department of Software Engineering, City Data Processing Company of Porto Alegre

(PROCEMPA)

Full-time

Technical director's consultant - advising on software engineering processes and practices. Implementation of agile practices and mentoring of agile coaches. Software development manager - leading teams on media communication systems. Implementation of agile processes and practices. Manager of department of systems (100 developers) - proving very large information systems (6 million of users). Team leader of software projects and agile coach. Methodology team - proposing of company methods and technologies. Software engineer - development of system - Java, JavaScript, PHP, Delphi

Fields of Application: Communication and Information Technologies

1999/12 - 2001/7 Software Engineer

Department of Informatics, Court of Justice of Rio Grande do Sul State

Full-time

Development of court process systems (Delphi).

Fields of Application: Communication and Information Technologies

1998/12 - 1999/12 Software Engineer

Department of Informatics, Brazilian Federal Court of Justice

Full-time

Development and support of court process systems (Visual Basic).

Fields of Application: Communication and Information Technologies

1995/3 - 1998/12 Software Engineer and System Administrator

Department of Informatics, Secretary of Planning of Rio Grande do Sul State

Full-time

Development and support process systems (Visual Basic). Network and infrastructure

administrator.

Fields of Application: Communication and Information Technologies

#### **Affiliations**

The primary affiliation is denoted by (\*)

(\*) 2018/8 Associate Professor, Université du Québec à Chicoutimi

# **Research Funding History**

#### Awarded [n=3]

2019/4 - 2024/3 NSERC Discovery Grants Program - Early Career Researcher, Grant, Establishment

Principal Investigator Clinical Research Project?: No

Project Description: Building software quality models for computer games

#### Funding Sources:

2019/4 - 2024/3 Natural Sciences and Engineering Research Council of Canada

(NSERC)

**Discovery Grants** 

Total Funding - 127,500 (Canadian dollar)

Portion of Funding Received - 35,500 (Canadian dollar)

Funding Competitive?: Yes

Funding Reference Number: RGPIN-2019-05339

2019/11 - 2022/11 Principal Investigator Data Security and Privacy Assurance at LABVI, Grant, Operating

Research Uptake Stakeholders: Academic Personnel

**Funding Sources:** 

2019/11 Accelerate

Total Funding - 60,000 (Canadian dollar) (Canadian dollar)

Funding Reference Number: T13201

2018/8 - 2020/8 Principal Investigator Startup Grant, Grant, Establishment

**Funding Sources:** 

2018/4 - 2020/4 UQAC Startup Grant

Total Funding - 20,000 (Canadian dollar)

Portion of Funding Received - 100 (Canadian dollar)

Funding Renewable?: No Funding Competitive?: No

### Completed [n=2]

2018/3 - 2018/7 Collaborator LAFORCE: Log Analytics for Operational Intelligence, Fellowship

Project Description: The goal of this project is to explore the use of log analytics and machine/deep learning techniques to improve Ubisoft operational intelligence. At Ubisoft, logs are used extensively for various system diagnosis tasks. The analysis of logs, however, is usually performed manually, limiting the full potential of the information contained in logs. In this project, we will explore the use of logs and deep learning to support two Ubisoft priority areas, namely the detection of anomalies and automated load and stress testing. We will also examine the practice of logging at Ubisoft and propose recommendations. The outcomes of this research project will result in superior diagnosis techniques that leverage the power of logs combined with deep learning techniques, while reducing the associated costs. The proposed project will train one postdoctoral fellow who will contribute to the growth of Canada's Information and Communication Technology sector.

Research Uptake Stakeholders: Academic Personnel

Research Settings: Canada

**Funding Sources:** 

2018/3 - 2018/7 Mathematics of Information Technology and Complex Systems

(MITACS)

MITACS Accelerate

Total Funding - 15,000 (Canadian dollar)

Portion of Funding Received - 100 (Canadian dollar)

Funding Competitive?: No

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software (Tools)

Fields of Application: Communication and Information Technologies

Co-investigator : Yann-Gaël Guéhéneuc;

Principal Applicant: Abdelwahab Hamou-Lhadj

2017/9 - 2018/2 Collaborator Postdoctoral fellow from Starting Grant of Prof. Yann-Gaël Guéhéneuc at Concordia

University., Fellowship

Clinical Research Project?: No

Project Description: Multi-language systems analysis Debugging practices and

collaborative approaches (Swarm Debugging).

Research Uptake Stakeholders: Academic Personnel

Research Settings: Canada

Funding Sources:

2017/8 - 2018/6 Concordia University

Startup Grant

Total Funding - 10,000 (Canadian dollar)
Portion of Funding Received - 100

Funding Competitive?: No

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development Principal Investigator: Yann-Gaël Guéhéneuc

# **Courses Taught**

Lecturer, Informatics, Centro Universitário Ritter dos Reis (UNIRitter)

Course Title: Software Engineering Course Topic: Software Engineering

Course Level: Undergraduate

Academic Session: Fall Number of Students: 50 Number of Credits: 3 Lecture Hours Per Week: 3

2 Coldin House For Wor

Guest Lecture?: No

Lecturer, Universidade Federal Do Rio Grande Do Sul

Course Title: Open Source Software Course Topic: Open source software

Course Level: Post Graduate Academic Session: Fall Number of Students: 25 Number of Credits: 3

Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, Universidade Federal Do Rio Grande Do Sul

Course Title: Requirements management

Course Topic: Software requeriments engineering

Course Level: Post Graduate Academic Session: Summer Number of Students: 30 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, Informatics, UDF Centro Universitario

Course Title: Computer Game Design I Course Topic: Computer Game Design

Course Level: Undergraduate Academic Session: Winter Number of Students: 50 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, Informatics, UDF Centro Universitario

Course Title: Computer Game Design I Course Topic: Computer Game Design

Course Level: Undergraduate Academic Session: Fall

Number of Students: 50 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, École Polytechnique de Montréal

Course Title: Software Architecture and Advanced Conception

Course Code: LOG8430

Course Topic: Software Architecture

Course Level: Graduate Academic Session: Winter Number of Students: 55 Number of Credits: 3

Lecture Hours Per Week: 3

Guest Lecture?: No

2019/08/26 - Professor, DIM, Université du Québec à Chicoutimi

2019/12/16 Course Title: Software Engineering

Course Code: 8INF851

Course Topic: Software Engineering

Course Level: Graduate Academic Session: Fall Number of Students: 31 Number of Credits: 3

Lecture Hours Per Week: 3

2019/08/26 -Professor, DIM, Université du Québec à Chicoutimi

Course Title: Lecture dirigée en sciences et technologies de l'information 2019/12/16

Course Code: INF9083

Course Topic: Computer Science

Course Level: Graduate Academic Session: Fall Number of Students: 4 Number of Credits: 3 Tutorial Hours Per Week: 4

2019/08/26 -Professor, DIM, Université du Québec à Chicoutimi

Course Title: Software Architecture 2019/12/16

Course Code: 8INF228

Course Topic: Software Engineering

Course Level: Undergraduate

Academic Session: Fall Number of Students: 8 Number of Credits: 3

Lecture Hours Per Week: 3

2019/08/26 -Professor, DIM, Université du Québec à Chicoutimi

Course Title: Sujets spéciaux 2019/12/16

Course Code: 8INF950

Course Topic: Software Engineering

Course Level: Graduate Academic Session: Fall Number of Students: 1

Professor, DIM, Université du Québec à Chicoutimi 2019/05/06 -

Course Title: Stage 2019/08/23

Course Code: 8INF859

Course Topic: Computer Science

Course Level: Graduate Academic Session: Summer Number of Students: 9

2019/05/06 -Professor, DIM, Université du Québec à Chicoutimi

2019/06/28 Course Title: Software Engineering

Course Code: 8INF851

Course Topic: Software Engineering

Course Level: Graduate Section: May-June

Academic Session: Summer Number of Students: 23 Number of Credits: 3 Lecture Hours Per Week: 6

2019/05/06 -Professor, DIM, Université du Québec à Chicoutimi

2019/06/28 Course Title: Sujets spéciaux

Course Code: 8INF950

Course Topic: Software Engineering

Course Level: Graduate Section: May-June

Academic Session: Summer Number of Students: 2 Number of Credits: 3

2019/01/10 -Professor, Université du Québec à Chicoutimi

Course Title: Software Engineering 2019/04/18

Course Code: 8INF851

Course Topic: Software Engineering

Course Level: Graduate Number of Students: 23 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

2018/08/29 -Professor, Informatique et Mathématique, Université du Québec à Chicoutimi

Course Title: Software Engineering 2018/12/12

Course Code: 8INF851

Course Topic: Software Engineering

Course Level: Post Graduate Academic Session: Fall Number of Students: 32 Number of Credits: 3

Lecture Hours Per Week: 3

Guest Lecture?: No

Lecturer, École Polytechnique de Montréal 2018/01/09 -2018/04/30 Course Title: Software Quality Engineering

Course Code: LOG8371

Course Topic: Software Quality

Course Level: Graduate Academic Session: Winter Number of Students: 116 Number of Credits: 3 Lecture Hours Per Week: 3 Lab Hours Per Week: 4 Guest Lecture?: No

2018/01/09 -Lecturer, École Polytechnique de Montréal

Course Title: Software Architecture and Advanced Conception 2018/04/30

Course Code: LOG8430

Course Topic: Software Architecture

Course Level: Graduate Academic Session: Winter Number of Students: 50 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

2018/01/08 -Professor, DIM, Université du Québec à Chicoutimi

Course Title: Stage-projet I 2018/04/27

Course Code: 8INF309

Course Topic: Software Engineering

Course Level: Undergraduate Academic Session: Winter Number of Students: 2 Number of Credits: 3

2017/09/05 - Lecturer, École Polytechnique de Montréal

2017/12/01 Course Title: Database systems

Course Code: INF3710

Course Topic: Database systems Course Level: Undergraduate

Academic Session: Fall Number of Students: 100 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

2017/09/05 - Lecturer, École Polytechnique de Montréal

2017/12/01 Course Title: Software Architecture and Advanced Conception

Course Code: LOG8430

Course Topic: Software Architecture

Course Level: Graduate Academic Session: Fall Number of Students: 50 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

2017/01/03 - Lecturer, École Polytechnique de Montréal 2017/04/28 Course Title: Software Quality Engineering

Course Code: LOG8371
Course Topic: Software Quality

Course Level: Graduate
Academic Session: Winter
Number of Students: 90
Number of Credits: 3
Lecture Hours Per Week: 3
Lab Hours Per Week: 4

Guest Lecture?: No

2017/01/03 - Teacher Assistant, École Polytechnique de Montréal

2017/04/28 Course Title: Software Architecture and Advanced Conception

Course Code: LOG8430

Course Topic: Software Architecture

Course Level: Graduate Academic Session: Winter Number of Students: 50 Number of Credits: 3 Lab Hours Per Week: 2

2016/09/01 - Lecturer, École Polytechnique de Montréal

2016/12/01 Course Title: Software Architecture and Advanced Conception

Course Code: LOG8430

Course Topic: Software Architecture

Course Level: Graduate Academic Session: Fall Number of Students: 50 Number of Credits: 3

Tutorial Hours Per Week: 3

Guest Lecture?: No

2017/01/03 - Lecturer, École Polytechnique de Montréal

2016/04/29 Course Title: Database systems

Course Code: INF3710

Course Topic: Database systems Course Level: Undergraduate Academic Session: Winter Number of Students: 60 Number of Credits: 3 Lecture Hours Per Week: 3

Guest Lecture?: No

2016/07/06 - Teacher Assistant, École Polytechnique de Montréal

2016/04/29 Course Title: Software Architecture and Advanced Conception

Course Code: LOG8430 Course Level: Graduate Academic Session: Winter Number of Students: 45 Number of Credits: 3 Lab Hours Per Week: 2 Guest Lecture?: No

### **Student/Postdoctoral Supervision**

#### Bachelor's [n=2]

2018/5 - 2018/8 Anas Bouziane (In Progress), Ecole Polytechnique de Montreal

Principal Supervisor Student Degree Start Date: 2016/8

Student Canadian Residency Status: Permanent Resident

Thesis/Project Title: Log severity level classification using machine learning techniques Project Description: Build a log severity level classifier using machine learning techniques,

as Random Forest.

Present Position: Student

Project Funding Sources: IVADO Amount - 5,000 (Canadian dollar)

2018/1 - 2018/12

Gabriel Veras (Completed), Federal University of Rio Grande do Sul

Principal Supervisor Student Degree Start Date: 2011/3

Student Degree Received Date: 2018/12

Student Canadian Residency Status: Not Applicable

Thesis/Project Title: Supporting Swarm Debugging on Interpreted Programming

Languages

Project Description: Implement Swarm Debuggers to interpreted languages as JavaScript,

Python and Ruby.

Present Position: Student

Student Country of Citizenship: Brazil

Other Supervisors: Principal Supervisor - Pimenta, Marcelo

Research Disciplines: Computer Engineering and Software Engineering

Master's Thesis [n=5]

2020/4 Eduardo Fontana (In Progress), Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2020/4

Student Canadian Residency Status: Student Work Permit

Thesis/Project Title: Swarm Debugging Student Country of Citizenship: Brazil

2020/1 Raphael Barbosa (In Progress) , Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2020/1

Student Canadian Residency Status: Student Work Permit

Thesis/Project Title: Mining software repositories

Student Country of Citizenship: Brazil

2019/8 Demetrio Guilardi (In Progress) , Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2019/8

Student Canadian Residency Status: Student Work Permit Thesis/Project Title: Android behavioural change analysis

Student Country of Citizenship: Brazil

2018/8 - 2019/5 Diana El-masri (In Progress) , Polytechnique Montreal

Principal Supervisor Student Degree Start Date: 2018/1

Student Canadian Residency Status: Canadian Citizen

Thesis/Project Title: Automatic severity level classification using machine learning Project Description: Using machine learning techniques, reclassify log entries in Devops

context.

Present Position: Student

Student Country of Citizenship: Canada

Other Supervisors: Principal Supervisor - Guéhéneuc, Yann-Gaël

Research Disciplines: Computer Engineering and Software Engineering

Areas of Research: Software Development

2016/1 - 2017/7 Cristiano Politowski (Completed), Universidade Federal de Santa Maria

Principal Supervisor Student Degree Start Date: 2015/3

Student Degree Received Date: 2017/9

Student Canadian Residency Status: Not Applicable

Thesis/Project Title: Sistema de recomendação de processos para o desenvolvimento de

jogos digitais

Present Position: Student

Student Country of Citizenship: Brazil

Other Supervisors: Co-Supervisor - Fontoura, Lisandra

Research Disciplines: Computer Engineering and Software Engineering

Doctorate [n=8]

2020/1 Eduardo Mendes (In Progress), Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2020/1

Student Canadian Residency Status: Permanent Resident

Thesis/Project Title: Self-adaptative SE systems

Student Country of Citizenship: Brazil

2019/9 Marcela Santos (In Progress) , Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2019/9

Student Canadian Residency Status: Student Work Permit Thesis/Project Title: Software Engineering for Robotics

Student Country of Citizenship: Brazil

2019/8 Jalves Nicacio (In Progress), Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2019/8

Student Canadian Residency Status: Student Work Permit

Thesis/Project Title: Programming mental models

Student Country of Citizenship: Brazil

2019/8 Bianca Napoleao (In Progress), UQAC

Principal Supervisor Student Degree Start Date: 2019/8

Student Degree Expected Date: 2022/7

Student Canadian Residency Status: Student Work Permit

Thesis/Project Title: Mining Software Process

Student Country of Citizenship: Brazil

Project Funding Sources: Natural Sciences and Engineering Research Council of Canada

(NSERC)

Amount - 54,000 (Canadian dollar)

Other Supervisors: Co-Supervisor - Sylvain, Halle

2019/8 Ricardo Avila (In Progress) , Université du Québec à Chicoutimi

Principal Supervisor Student Degree Start Date: 2019/8

Student Canadian Residency Status: Student Work Permit

Thesis/Project Title: Models for VCS Student Country of Citizenship: Brazil

2019/5 - 2024/5 Diana El-masri (In Progress) , Polytechnique de Montreal

Principal Supervisor Student Degree Start Date: 2019/5

Student Canadian Residency Status: Canadian Citizen

Thesis/Project Title: Observability practices in distributed systems

Present Position: Student

Student Country of Citizenship: Canada

Other Supervisors: Co-Supervisor - Gueheneuc, Yann-Gael; Co-Supervisor - Kohm,

Foutse

2018/9 - 2023/9 Cristiano Politowski (In Progress) , Concordia University

Co-Supervisor Student Degree Start Date: 2018/9

Student Canadian Residency Status: Student Work Permit Thesis/Project Title: Software Engineering for Computer Games

Present Position: Student

2017/3 - 2021/12 Guilherme Lacerda (In Progress) , Federal University of Rio Grande do Sul

Principal Supervisor Student Degree Start Date: 2017/3

Student Canadian Residency Status: Not Applicable

Thesis/Project Title: Refactoring bad smells

Present Position: Student

Other Supervisors: Principal Supervisor - Pimenta, Marcelo

# **Staff Supervision**

# **Mentoring Activities**

2019/6 - 2019/8 Internship mentor, Université du Québec à Chicoutimi

Number of Mentorees: 2

Mentorees: Iago Correa Vincent Gagnon

Implementing Swarm Debugging

2018/4 - 2018/8	Internship mentor, Ecole Polytechnique de Montréal
	Number of Montarage, 1

Number of Mentorees: 1 Mentorees: Anas Bouziane Intern research mentoring

2017/4 - 2017/8 Internship mentor, École Polytechnique de Montréal

Number of Mentorees: 2

Mentorees: Raphael Bissonnette and Dipti Sahu

Internship research mentoring

# **Journal Review Activities**

2018/5 - 2019/9	Reviewer, Journal of Software and Systems, Elsevier Number of Works Reviewed / Refereed: 3
2019/1 - 2019/3	Reviewer,IEEE Access Number of Works Reviewed / Refereed: 1
2017/1 - 2019/3	Reviewer, Empirical Software Engineering, Springer Nature Number of Works Reviewed / Refereed: 3
2017/8 - 2018/7	Reviewer, Transactions on Software Engineering (TSE), IEEE Computer Society Number of Works Reviewed / Refereed: 2
2017/9 - 2017/9	Reviewer, Journal of Software: Evolution and Process, John Wiley & Sons Ltd Number of Works Reviewed / Refereed: 1

### **Conference Review Activities**

2019/11 - 2019/11	PC Member, ACM Technical Symposium on Computer Science Education (SIGCSE 2019), Double Blind, ACM Number of Works Reviewed / Refereed: 9
2019/6 - 2019/11	PC Member, ACM Technical Symposium on Computer Science Education (SIGCSE 2020), Double Blind, ACM Number of Works Reviewed / Refereed: 7
2019/8 - 2019/8	PC Member, Workshop on Software Visualization, Evolution and Maintenance, Blind, Brazilian Conference on Software: Theory and Practice (CBSoft) Number of Works Reviewed / Refereed: 1
2019/5 - 2019/5	PC Member, MobiSPC2019 - The 16th International Conference on Mobile Systems and Pervasive Computing, Blind, ELSEVIER Number of Works Reviewed / Refereed: 2
2019/3 - 2019/5	PC Member, IEEE International Conference on Software Quality, Reliability and Security (QRS) 2019., Double Blind Number of Works Reviewed / Refereed: 7
2019/1 - 2019/5	Procedings Chair, PC Member, IEEE International Conference of Software Comprehension (ICPC) 2019, Double Blind, IEEE International Conference of Software Engineering (ICSE) 2019  Number of Works Reviewed / Refereed: 8
2019/3 - 2019/3	PC Member, 1st International Workshop on Software Engineering Research & Practices for the Internet of Things, Blind, IEEE International Conference of Software Engineering

Number of Works Reviewed / Refereed: 4

2019/2 - 2019/2	PC Member, 1st International Workshop on Software Engineering Research & Practices for the Internet of Things (SERP4IoT 2019), Blind, ACM/IEEE ICSE 2019 Number of Works Reviewed / Refereed: 4
2018/10 - 2018/10	PC Member, The 50th ACM Technical Symposium on Computer Science Education (SIGCSE 2018), Double Blind, ACM Number of Works Reviewed / Refereed: 9
2018/8 - 2018/8	PC Member, Workshop on Software Visualization, Evolution and Maintenance, Blind, Brazilian Conference on Software: Theory and Practice (CBSoft) Number of Works Reviewed / Refereed: 2
2018/2 - 2018/5	PC Member, IEEE/ACM International Conference of Program Comprehension, Double Blind, IEEE Computer Society Number of Works Reviewed / Refereed: 6
2017/8 - 2017/9	Reviewer, Asia-Pacific Software Engineering Conference, Double Blind, The Special Interest Group on Software Engineering, Information Processing Society of Japan (IPSJ/SIG-SE) Number of Works Reviewed / Refereed: 1
2017/7 - 2017/7	Reviewer, IEEE International Conference on Software Maintenance and Evolution, Double Blind, IEEE Computer Society Number of Works Reviewed / Refereed: 1
2017/2 - 2017/2	Reviewer, IEEE International Conference on Program Comprehension, Double Blind, IEEE Computer Society Number of Works Reviewed / Refereed: 1
2016/11 - 2016/12	Reviewer, IEEE International Conference on Software Engineering (NIER), Double Blind, IEEE Computer Society Number of Works Reviewed / Refereed: 1
2016/3 - 2016/3	Reviewer, IEEE Working Conference on Software Visualization Artifacts Track, Double Blind, IEEE Computer Society Number of Works Reviewed / Refereed: 2
2015/3 - 2016/3	PC Member, International Workshop on Games and Software Engineering, Blind, IEEE Computer Society Number of Works Reviewed / Refereed: 4
2016/1 - 2016/1	External Reviewer, Conference on Human Factors in Computing Systems (CHI), Double Blind, ACM SIGCHI Number of Works Reviewed / Refereed: 1
2015/7 - 2015/7	Reviewer, Workshop on Software Visualization, Evolution and Maintenance, Blind, Brazilian Conference on Software: Theory and Practice (CBSoft) Number of Works Reviewed / Refereed: 2
2012/7 - 2012/7	Reviewer, Workshop on Software Visualization, Evolution and Maintenance, Blind, Brazilian Conference on Software: Theory and Practice (CBSoft) Number of Works Reviewed / Refereed: 2

# **Graduate Examination Activities**

2020/1 - 2020/1	PhD Comprehensive Exam Committee Member, Diana El-masri, Génie informatique et génie logiciel, École Polytechnique de Montréal
2020/1 - 2020/1	PhD Oral Exam Member, Cristiano Politowski, Computer Science and Software Engineering, Concordia University

2019/9 - 2019/9	, Gleison Brito, Computer Science, Universidade Federal de Minas Gerais
2019/8 - 2019/8	PhD Oral Exam Member, Ricardo Ávila, Computer Science, Universidade Federal do Ceará
2019/6 - 2019/6	PhD Comprehensive Exam Committee Member, Cristiano Politowski, Computer Science and Software Engineering, Concordia University
2018/12 - 2018/12	PhD Oral Exam Member, Zayan Elkhaled, Département d'informatique et mathématique, Université du Québec à Chicoutimi
2018/11 - 2018/11	PhD Oral Exam Member, Ghassan Fadlallah, Département d'informatique et mathématique, Université du Québec à Chicoutimi

### **Community and Volunteer Activities**

2018/10 - 2018/10 Technical Coach, Université du Québec à Chicoutimi

Coaching team in the first "CGI CodeJam" software engineering competition.

# **Committee Memberships**

2019/8 Committee Member, Comité de pédagogie universitaire (CPU), Université du Québec à

Chicoutimi

# **Most Significant Contributions**

2017/1 Cloud Computing System - REST APIs

I surveyed the literature and compile a catalogue of 73 best practices in the design of REST APIs making APIs more understandable and reusable [10]. Using my catalogue, I performed a study of three different REST APIs (Google Cloud, OpenStack, and OCCI) to investigate how their APIs are offered and accessed [10]. I showed that best practices can help evaluate REST APIs and design better REST APIs concerning understandability and reusability. Also, I developed an open source approach for extracting and analyzing REST cloud computing lexicons [11]. Using my approach, I studied the lexicons and the linguistic (anti)patterns from 16 providers of REST Cloud Computing APIs [12], and I observed that, although the 16 REST APIs describe the same domain (Cloud computing), contrary to what one might expect, their lexicons do not share a large number of common terms and 90% of the terms are just used by one provider. Finally, my work contributes in designing interoperable of Cloud APIs.

2016/10 Swarm Debugging

I developed novel techniques and tools to support and study developers collaboration practices during debugging. Debugging remains, as of today, one of the most costly (time, effort) activity during software development and also one of the most solitary: while other activities benefit from collaborative tools, such as reviewing tools, debugging lacks such support. Any improvement to reduce debugging time and effort through collaborations has the potential to ease this activity dramatically. During interactive debugging, developers produce a lot of information about systems and help developers to learn their ways into their systems and, therefore, become experts. This information is however lost after the end of the developers' debugging activities. To allow developers to leverage knowledge of others' debugging activities during a new debugging activity, I introduced the concept of Swarm Debugging (SD). SD uses developers' cooperative effort to share knowledge about debugging.

2008/3

#### **Software Engineering for Computer Games (SEGA)**

Game development is an extremely complex activity. In a pioneer study using computer game postmortems, I showed that game projects suffer from management and process problems. To alleviate these problems, I proposed that agile processes are appropriated when innovation and speed to market are vital in game development are not backed by qualitative and quantitative evidence. My results were confirmed in a survey of the software engineering processes in the computer game industry from postmortem analyses, modelling them using Business Process Model and Notation (BPMN). I found that iterative practices are more and more adopted and applied, in at least 55% of the projects. I showed that video game and traditional software development share similar processes and practices. However, I identified that the iterative process and agile practice are yet misunderstood by some game developers and managers.

### **Text Interviews**

2019/08/21

Computer Games Development, Bruno Izidro, UOL Start https://www.uol.com.br/start/reportagens-especiais/crunch-criando-games-sob-pressao/ Description / Contribution Value: Discussion about game development process versus traditional software development process.

### **Publications**

#### **Journal Articles**

Diana El-Masri; Fabio Petrillo; Yann-Gael Gueheneuc; Abdelwahab Hamou-Lhadj; Anas Bouziane.
 (2019). A Quality Model for Evaluating Automated Log Abstraction Techniques. Information and Software Technology. : (17 pages).

Co-Author

Accepted, Elsevier, Refereed?: Yes

Number of Contributors: 5

2. Mohammed Sayagh, Noureddine Kerzazi, Fabio Petrillo, Khalil Bennani et Bram Adams. (2019). What should your Run-time Configuration Framework do to Help Developers?. Empirical Software Engineering. Co-Author

Accepted, Springer, Refereed?: Yes

Number of Contributors: 5

3. Fabio Petrillo, Yann-Gaël Géuhéneuc, Marcelo Pimenta, Carla Freitas, Foutse Khomh. (2019). Swarm Debugging: the Collective Intelligence on Interactive Debugging. Journal of Systems and Software. 153: 152-174.

http://dx.doi.org/10.1016/j.jss.2019.04.028

First Listed Author Published, Elsevier, Refereed?: Yes

Number of Contributors: 5

4. Zeinab Kermansaravi; Diana El-Masri; Foutse Khomh; Fabio Petrillo; Yann-gael Gueheneuc; Abdelwahab Hamou-lhadj. (2019). A Large-Scale Empirical Study of the Impact of Linguistic Anti-patterns on Program Comprehension. Software Quality Journal (SQJO).

Co-Author

Submitted,

Refereed?: Yes

Number of Contributors: 6

5. Guilherme Lacerda Fabio Petrillo Marcelo Pimenta Yann-Gaël Guéhéneuc. (2019). Code Smells and Refactorings: A Tertiary Systematic Review of Challenges and Solutions. Journal of Systems and Software. Co-Author

Revision Requested, Elsevier,

Refereed?: Yes

Number of Contributors: 4

6. Hayet Brabra, Achraf Mtibaa, Fabio Petrillo, Philippe Merle, Layth Sliman, Naouel Moha, Walid Gaaloul, Yann-Gaël Guéhéneuc, Boualem Benatallah, Faïez Gargouri. (2019). On Semantic Detection of Cloud API (Anti)Patterns. Information and Software Technology. 107(March 2019): 65-82.

Co-Author

Published, Elsevier,

Refereed?: Yes, Open Access?: No, Synthesis?: No

Number of Contributors: 10

7. Mohammed Sayagh, Noureddine Kerzazi, Fabio Petrillo, Bram Adams. (2018). Software Configuration Engineering in Practice - Interviews, Survey, and Systematic Literature Review. IEEE Transactions on Software Engineering. Early Access

Co-Author

Published, IEEE Computer Society,

Refereed?: Yes

Number of Contributors: 4

8. Cristiano Politowski, Lisandra M. Fontoura, Fabio Petrillo, Yann-Gaël Guéhéneuc. (2018). Learning from the past: A process recommendation system for video game projects using postmortems experiences. Information & Software Technology. 100: 103 - 118.

http://dx.doi.org/10.1016/j.infsof.2018.04.003

Co-Author

Published,

Refereed?: Yes, Open Access?: No

Number of Contributors: 4

9. Petrillo F., Merle P., Palma F., Moha N., Guéhéneuc YG. (2018). A Lexical and Semantical Analysis on REST Cloud Computing APIs. Cloud Computing and Service Science. 864: 308--332.

http://dx.doi.org/10.1007/978-3-319-94959-8 16

First Listed Author

Published, Springer International Publishing, United States

Refereed?: Yes, Open Access?: No, Synthesis?: No

Number of Contributors: 5

Editors: Ferguson D., Muñoz V., Cardoso J., Helfert M., Pahl C.

10. Guilherme Avelino, Leonardo Passos, Fabio Petrillo, Marco Tulio Valente. (2018). Who Can Maintain this Code? Assessing the Effectiveness of Repository-Mining Techniques for Identifying Software Maintainers. IEEE Software. 36(6): 34 - 42.

http://dx.doi.org/10.1109/MS.2018.185140155

Co-Author

Published, IEEE Software,

Refereed?: Yes

Number of Contributors: 4

#### Thesis/Dissertation

1. Swarm debugging: the collective debugging intelligence of the crowd. (2016). Universidade Federal Do Rio Grande Do Sul. Doctorate.

Number of Pages: 125 Supervisor: Marcelo Soares Pimenta

Description / Contribution Value: We introduce the concept of Swarm Debugging, to bring crowdsourcing to the activity of debugging. Through crowdsourcing, we aim at helping developers by capitalizing on their dedication, effort, and long hours of work to ease debugging activities of their peers or theirs, on other bugs. We show that swarm debugging requires a particular approach to collect relevant information, and we describe the Swarm Debugging Infrastructure. We also show that swarm debugging minimizes developers effort.

 Agile practices on video game development process. (2008). Universidade Federal Do Rio Grande Do Sul. Master's Thesis.

Number of Pages: 168 Supervisor: Marcelo Soares Pimenta

Description / Contribution Value: The aim of this work is to study the effects of agile practices on electronic game development process, analysing the most important problems in the game industry, surveying best practices and proposing a set of agile practices focused on the game development issues.

#### **Conference Publications**

1. Marcela Santos Bianca Napoleao Fabio Petrillo. (2019). Robotic Systems and Blockchain: a software systems perspective. Frontiers in Robotics and Al. Second Symposium on Blockchain for Robotics and Al Systems, Boston, United States ((11 pages)),

Conference Date: 2019/12

Paper Co-Author Accepted

Refereed?: Yes, Invited?: No Number of Contributors: 3

2. Hamid Mcheick, Youness Dendane, Fabio Petrillo, and Souhail Ben-Ali. (2019). Quality model for evaluating and choosing a stream processing framework architecture. IEEE. 16th ACS/IEEE International Conference on Computer Systems and Applications (AICCSA 2019), Abu Dhabi, United Arab Emirates ((7 pages)). IEEE. United States

Conference Date: 2019/11

Paper Co-Author Accepted

Refereed?: Yes, Invited?: No Number of Contributors: 4

3. Philippe Marcotte Frédéric Grégoire Fabio Petrillo. (2019). Multiple Fault-tolerance Mechanisms in Cloud Systems: a Systematic Review. 3rd International Workshop on Software Faults (IWSF/ISSRE 2019), Berlin, Germany ((8 pages)). IEEE Press, United States

Conference Date: 2019/10

Paper Last Author Accepted

4. Raphael Khoury Abdelwahab Hamou-Lhadj Mohamed Ilyes Rahim Sylvain Hallé Fabio Petrillo. (2019).

TRIADE: A Three-Factor Trace Segmentation Method to Support Program Comprehension. 3rd International Workshop on Software Faults (IWSF - ISSRE 2019), Prague, Germany ((8 Pages)). IEEE

Press, United States Conference Date: 2019/10

Paper Last Author Accepted

Refereed?: Yes, Invited?: No Number of Contributors: 5

5. Laure Bedu Olivier Tinh Fabio Petrillo. (2019). A tertiary systematic literature review on Software Visualization. 7th IEEE Working Conference on Software Visualization (VISSOFT 2019), Cleveland, United States ((12 pages)). IEEE Press, United States

Conference Date: 2019/9

Paper Last Author Accepted

Refereed?: Yes, Invited?: No Number of Contributors: 3

6. Louis Racicot, Nicolas Cloutier, Julien Abt, Fabio Petrillo. (2019). Quality Aspects of Serverless Architecture: An Exploratory Study on Maintainability. 14th International Conference on Software Technologies - ICSOFT, Prague, Czech Republic (60-70). INSTICC, Portugal

Conference Date: 2019/7

Paper Last Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 4

7. Eduardo A. Fontana and Fabio Petrillo. (2019). Visualizing sequences of debugging sessions using Swarm Debugging. 27th International Conference on Program Comprehension (ICPC '19), Montreal, Canada (139-143). IEEE Press,

Conference Date: 2019/5

Paper Co-Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 2

 Zayan El Khaled Hamid Mcheick Fabio Petrillo. (2019). Wifi coverage range characterization for smart space applications. Proceedings of the 1st International Workshop on Software Engineering Research & Practices for the Internet of Things (SERP4IoT '19), Montreal, Canada (61-68). IEEE Press, http://dx.doi.org/10.1109/SERP4IoT.2019.00018

Conference Date: 2019/5

Paper Last Author Published

9. Gregory Fournier Fabio Petrillo. (2018). Challenges and solutions on architecting Blockchain Systems. Proceedings of the 28th Annual International Conference on Computer Science and Software Engineering (CASCON), Toronto, Canada ((8 pages)),

Conference Date: 2018/10

Paper Co-Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 2

10. Naoures Ghrairi, Amine Barrak, Fabio Petrillo, Segla Kpodjedo, and Foutse Khomh. (2018). **The State of Practice on Virtual Reality (VR) Applications: an Exploratory Study on Github and Stack Overflow**.

Proceedings of the 2018 IEEE International Conference on Software Quality, Reliability and Security (QRS), Lisbon, Portugal ((12 pages)). IEEE, United States

Conference Date: 2018/7

Paper Co-Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 5

11. Aiko Yamashita, Fabio Petrillo, Foutse Khomh and Yann-Gaël Guéhéneuc. (2018). Developer Interaction Traces backed by IDE Screen Recordings from Think-aloud Sessions. Proceedings of the 15th International Conference on Mining Software Repositories (MSR). International Conference on Mining Software Repositories (MSR), Gothenburg, Sweden ((4 pages)). IEEE, United States

Conference Date: 2018/5

Paper Co-Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 4

12. Francisco Jose Rego Lopes, Fabio Petrillo. (2018). SimKan: Training Kanban Practices Through Stochastic Simulation. Agile Methods. Revised Selected Papers of WBMA 2016. Communications in Computer and Information Science, Curitiba, Brazil (110--121). Springer International Publishing, United States <a href="http://dx.doi.org/10.1007/978-3-319-55907-0">http://dx.doi.org/10.1007/978-3-319-55907-0</a> 10

Conference Date: 2016/11

Paper Co-Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 2

Editors: Silva da Silva T., Estácio B., Kroll J., Mantovani Fontana R.

13. Fabio Petrillo, Marcelo Pimenta, Francisco Trindade, and Carlos Dietrich. (2018). Houston, we have a problem...: a survey of actual problems in computer games development. Proceeding SAC '08 Proceedings of the 2008 ACM symposium on Applied computing. ACM Symposium on Applied computing, Fortaleza, Brazil (707-711). ACM, United States

http://dx.doi.org/10.1145/1363686.1363854

Conference Date: 2008/3

Paper

First Listed Author

Published

14. F. Petrillo, H. Mandian, A. Yamashita, F. Khomh and Y. G. Guéhéneuc. (2017). How Do Developers Toggle Breakpoints? Observational Studies. Proceeding 2017 IEEE International Conference on Software Quality, Reliability and Security (QRS). IEEE International Conference on Software Quality, Reliability and Security (QRS), Prague, Czech Republic (285-295). IEEE, United States

http://dx.doi.org/10.1109/QRS.2017.39

Conference Date: 2017/7

Paper

First Listed Author

Published

Refereed?: Yes, Invited?: No Number of Contributors: 5

Fabio Petrillo, Philippe Merle, Naouel Moha, Yann-Gael Gueheneuc. (2017). Towards a REST Cloud Computing Lexicon. Proceedings of the 7th International Conference on Cloud Computing and Services Science. International Conference on Cloud Computing and Services Science, Porto, Portugal (348--355). SCITEPRESS, Portugal

http://dx.doi.org/10.5220/0006281203480355

Conference Date: 2017/4

Paper

First Listed Author

Published

Refereed?: Yes. Invited?: No Number of Contributors: 4

Petrillo F., Merle P., Moha N., Guéhéneuc YG. (2016). Are REST APIs for Cloud Computing Well-16. Designed? An Exploratory Study. Service-Oriented Computing. Lecture Notes in Computer Science. Proceedings of 14th International Conference, ICSOC 2016, Banff, Canada (157-170). Springer International Publishing, United States

http://dx.doi.org/10.1007/978-3-319-46295-0 10

Conference Date: 2016/10

Paper

First Listed Author

Published

Refereed?: Yes. Invited?: No Number of Contributors: 4

Editors: Sheng Q., Stroulia E., Tata S., Bhiri S

F. Petrillo, Z. Soh, F. Khomh, M. Pimenta, C. Freitas and Y. G. Guéhéneuc. (2016). Towards 17. Understanding Interactive Debugging. Proceeding 2016 IEEE International Conference on Software Quality, Reliability and Security (QRS). IEEE International Conference on Software Quality, Reliability and Security (QRS), Vienna, Austria (152-163). IEEE, United States http://dx.doi.org/10.1109/QRS.2016.27

Conference Date: 2016/8

Paper

First Listed Author

Published

18. Cristiano Politowski, Lisandra Fontoura, Fabio Petrillo, and Yann-Gaël Guéhéneuc. (2016). Are the old days gone?: a survey on actual software engineering processes in video game industry. International Workshop on Games and Software Engineering GAS@ICSE, Austin, United States (22-28). ACM, United States

http://dx.doi.org/10.1145/2896958.2896960

Conference Date: 2016/5

Paper Co-Author Published

Refereed?: Yes, Invited?: No Number of Contributors: 4

19. F. Petrillo and Z. Soh and F. Khomh and M. Pimenta and C. Freitas and Y. G. Guéhéneuc. (2016). Understanding interactive debugging with Swarm Debug Infrastructure. Proceeding IEEE 24th International Conference on Program Comprehension (ICPC). International Conference on Program Comprehension (ICPC), Austin, United States (1-4). IEEE, United States

http://dx.doi.org/10.1109/ICPC.2016.7503740

Conference Date: 2016/5

Paper

First Listed Author

Published

Refereed?: Yes, Invited?: No Number of Contributors: 6

20. F. Petrillo and G. Lacerda and M. Pimenta and C. Freitas. (2015). Visualizing interactive and shared debugging sessions. Proceeding IEEE 3rd Working Conference on Software Visualization (VISSOFT). IEEE Working Conference on Software Visualization (VISSOFT), Bremen, Germany (140-144). IEEE, United States

http://dx.doi.org/10.1109/VISSOFT.2015.7332425

Conference Date: 2015/9

Paper

First Listed Author

Published