

# Mairieli Wessel

ASSISTANT PROFESSOR

Radboud University · The Netherlands

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Designing *intelligent support* for developers by leveraging *software bot* capabilities

## Current Position

### Radboud University

ASSISTANT PROFESSOR  
Software Science Department

Nijmegen, The Netherlands

Jul. 2022 - Until now

## Education

### Institute of Mathematics and Statistics (IME) at University of São Paulo (USP)

PH.D. IN COMPUTER SCIENCE

- Dissertation: *Perception of Software Bots on Pull Requests on Social Coding Environments*
- Committee: Dr. Marco A. Gerosa (supervisor), Dr. Igor Steinmacher (co-supervisor), Dr. Andy Zaidman, Dr. Gustavo Pinto, Dr. Raquel Prates

São Paulo, Brazil

Feb. 2018 - Aug. 2021

### Federal University of Technology - Paraná (UTFPR)

B.S. IN COMPUTER SCIENCE

- Monograph topic: *Tweaking Association Rules to Optimize Software Change Recommendations*. (In Portuguese)
- Advisor: Dr. Igor Scaliante Wiese

Campo Mourão, Paraná, Brazil

Feb. 2014 - Dec. 2017

## Prior Experiences

### RESEARCH

#### Delft University of Technology

POSTDOCTORAL RESEARCHER

Postdoctoral Researcher at the Software Engineering Research Group (SERG), working in the TestShift project with *Prof. Andy Zaidman*

Delft, The Netherlands

Sept. 2021 - Jun. 2022

#### Concordia University

VISITING PH.D. STUDENT

Visiting scholar at Concordia University's Data-driven Analysis of Software (DAS) Lab with *Prof. Emad Shihab*

Montreal, Canada

Feb. 2021 - Jul. 2021

#### IBM Research

RESEARCH INTERN

Graduate research intern at the Conversational Intelligence group at IBM Research laboratory in Brazil with *Dr. Heloisa Candello*

São Paulo, Brazil

Apr. 2019 - Feb. 2020

### DEVELOPMENT

#### Mactus

FULLSTACK DEVELOPER

Web stack and native application stack developer. Working on Java and PHP projects.

Campo Mourão, Paraná, Brazil

Jan. 2012 - Dec. 2017

## Publications

Most important publications marked with ★.

### JOURNAL ARTICLES [PEER-REVIEWED]

#### [J.1] Quality Gatekeepers: Investigating the Effects of Code Review Bots on Pull Request

##### Activities ★

EMSE 2022

WESSEL, M., SEREBRENİK, A., WIESE, I., STEINMACHER, I., GEROSA, M.

- In the Special Issue of ICSME 2020 of the Empirical Software Engineering (EMSE)
- **My contribution: 75%**. As the first author of this paper, I helped conceive the study, performed the data analysis and modeling, and wrote most of the manuscript.

## FULL CONFERENCE PAPERS [PEER-REVIEWED]

### [C.11] BotHunter: An Approach to Detect Software Bots in GitHub

MSR 2022

ABDELLATIF, A., WESSEL, M., STEINMACHER, I., GEROSA, M., AND SHIHAB, E.

[To appear] Mining Software Repositories (MSR)

### [C.10] Unveiling Practices of Customer Service Content Curators of Conversational Agents

CSCW 2022

CANDELLO, H., PINHANEZ, C., MULLER, M., AND WESSEL, M.

[To appear] ACM Conference on Supported Cooperative Work and Social Computing (CSCW)

### [C.9] Bots for Pull Requests: The Good, the Bad, and the Promising ★

ICSE 2022

WESSEL, M., ABDELLATIF, A., WIESE, I., CONTE, T., SHIHAB, E., GEROSA, M., STEINMACHER, I.

Acceptance rate: 26%

• IEEE/ACM International Conference on Software Engineering (ICSE)

• **My contribution: 80%.** As the first author of this paper, I helped conceive the study, performed the data analysis and modeling, and wrote most of the manuscript. This paper involves researchers from multiple institutions and countries and I led the research.

### [C.8] Don't Disturb Me: Challenges of Interacting with Software Bots on Open Source Software Projects ★

CSCW 2021

WESSEL, M., WIESE, I., STEINMACHER, I., GEROSA, M.

• ACM Conference on Supported Cooperative Work and Social Computing (CSCW)

• **My contribution: 75%.** As the first author of this paper, I helped conceive the study, performed the data analysis and modeling, and wrote most of the manuscript.

### [C.7] How Do Software Developers Use GitHub Actions to Automate Their Workflows?

MSR 2021

KINSMAN, T., WESSEL, M., GEROSA, M., TREUDE, C.

Mining Software Repositories (MSR)

### [C.6] What to Expect from Code Review Bots? A Survey with OSS Maintainers

SBES 2020

WESSEL, M., SEREBRENIK, A., WIESE, I., STEINMACHER, I., GEROSA, M.

Insightful Ideas and Emerging Results Track of Brazilian Symposium on Software Engineering (SBES - IIER)

### [C.5] Effects of Adopting Code Review Bots on Pull Requests to OSS Projects

ICSME 2020

**[Distinguished Paper Award] ★**

WESSEL, M., SEREBRENIK, A., WIESE, I., STEINMACHER, I., GEROSA, M.

Acceptance rate: 24.9%

• 36th IEEE International Conference on Software Maintenance and Evolution (ICSME)

• **My contribution: 75%.** As the first author of this paper, I helped conceive the study, performed the data analysis and modeling, and wrote most of the manuscript.

### [C.4] Co-designing a Conversational Interactive Exhibit for Children

IDC 2020

CANDELLO, H., VIDON, S., PINHANEZ, C., AND WESSEL, M.

19th ACM Interaction Design and Children (IDC)

### [C.3] Teaching Robots to Act and Converse in Physical Spaces: Participatory Design Fictions with Museum Guides

HTTF 2019

CANDELLO, H., PICHILIANI, M., WESSEL, M., PINHANEZ, C., AND MULLER, M.

Halfway to the Future Symposium (HTTF 2019)

### [C.2] The Power of Bots: Characterizing and Understanding Bots in OSS Projects ★

CSCW 2018

WESSEL, M., DE SOUZA, B. M., STEINMACHER, I., WIESE, I. S., POLATO, I., CHAVES, A. P., AND GEROSA, M. A.

Acceptance rate: 27%

• ACM Conference on Supported Cooperative Work and Social Computing (CSCW)

• **My contribution: 75%.** As the first author of this paper, I helped conceive the study, performed the data analysis and modeling, and wrote most of the manuscript.

### [C.1] Tweaking Association Rules to Optimize Software Change Recommendations

SBES 2017

WESSEL, M., ANICHE, M. F., OLIVA, G. A., GEROSA, M. A., AND WIESE, I. S.

31st Brazilian Symposium on Software Engineering (SBES)

## WORKSHOP + CONSORTIUM PAPERS [PEER-REVIEWED]

### [W.8] Software Bots in Software Engineering: Benefits and Challenges

MSR 2022

WESSEL, M., GEROSA, M., SHIHAB, E.

[To appear] Mining Software Repositories

### [W.7] Shaping the Future of Human-Bot Partnership in Open Source Software

CSCW 2021 workshop

WESSEL, M., STEINMACHER, I., GEROSA, M.

Human-Machine Partnerships in the Future of Work Workshop

## [W.6] Enhancing Developers' Support on Pull Requests Activities with Software Bots

ESEC/FSE 2020

WESSEL, M.

ESEC/FSE 2020 Doctoral Symposium

## [W.5] Leveraging Software Bots to Enhance Developers' Collaboration in Online Programming Communities

CSCW Companion 2020

WESSEL, M.

Companion Publication of the 2020 Conference on Computer Supported Cooperative Work and Social Computing: Doctoral Consortium

## [W.4] The Inconvenient Side of Software Bots on Pull Requests

BotSE 2020

WESSEL, M., AND STEINMACHER, I.

2nd International Workshop on Bots in Software Engineering (BotSE)

## [W.3] Unveiling Practices and Challenges of Machine Teachers of Customer Service Conversational Systems

CUI@CHI 2020

CANDELLO, H., WESSEL, M., PINHANEZ, C., AND VIDON, S.

CHI2020 workshop: Mapping Grand Challenges for the Conversational (CUI@CHI)

## [W.2] 30 Minutes to Introduce AI to Kids

AAAI Fall Symposium 2019

CANDELLO, H., PICHILIANI, M., PINHANEZ, C., AND WESSEL, M.

Teaching AI in K-12 Symposium (2019 AAAI Fall Symposium)

## [W.1] Should I Stale or Should I Close? An Analysis of a Bot that Closes Abandoned Issues and Pull Requests

BotSE 2019

WESSEL, M., STEINMACHER, I., WIESE, I., AND GEROSA, M. A.

1st Workshop on Bots in Software Engineering (BotSE)

## Service

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### EDITORIAL

2022 **Guest Editor** of the Special Issue on Bots in Software Engineering – IEEE Software Magazine

### ORGANIZING COMMITTEES

2022 **Co-Chair** of the 21st Belgium-Netherlands Software Evolution Workshop (BENEVOL)

2022 **Co-organizer** of the ACM/IEEE International Workshop on Bots in Software Engineering (BotSE)

2021 **Video Co-Chair** of the International Conference on Program Comprehension (ICPC)

2021 **Co-organizer** of the ACM/IEEE International Workshop on Bots in Software Engineering (BotSE)

### JOURNAL REVIEWER

2022, 2021 **Manuscript Reviewer** of the Empirical Software Engineering (EMSE)

2021 **Manuscript Reviewer** of the Transactions on Software Engineering and Methodology (TOSEM)

2021 **Manuscript Reviewer** of the PeerJ Computer Science

2022, 2020 **Manuscript Reviewer** of the Journal of Systems & Software (JSS)

### PROGRAM COMMITTEES

2022 **Committee Member** of the 18th International Conference on Open Source Systems (OSS)

2022 **Committee Member** of the 36th Brazilian Symposium on Software Engineering (SBES) - Education Track

2022 **Committee Member** of the 36th Brazilian Symposium on Software Engineering (SBES) - Technical Track

2022 **Associate Chair** of the ACM SIGCHI Conference on Designing Interactive Systems (DIS)

2022 **Committee Member** of the IEEE/ACM International Conference on Global Software Engineering (ICGSE)

2022 **Committee Member** of the International Conference on Program Comprehension (ICPC)

2022 **Committee Member** of the ACM/IEEE MSR Challenge Track

2022 **Committee Member** of the ACM/IEEE ICSE Artifact Evaluation

2021 **Committee Member** HCAI: Human Centered AI Workshop

2021 **Shadow PC Member** of the ACM/IEEE Mining Software Repositories Conference (MSR)

2020 **Committee Member** of the ACM/IEEE International Workshop on Bots in Software Engineering (BotSE)

### EXTERNAL REVIEWS

- 2022 **Reviewer** of the ACM Conversational User Interfaces (CUI)
- 2022 **Reviewer** of the ACM Conference on Human Factors in Computing Systems (CHI)
- 2022 **Sub-reviewer** of the ACM/IEEE International Conference on Software Engineering (ICSE)
- 2022 **Sub-reviewer** of the ACM International Conference on Supporting Group Work (GROUP)
- 2021 **Reviewer** of the ACM Conference on Supported Cooperative Work and Social Computing (CSCW)
- 2020 **Sub-reviewer** of the Workshop sobre Aspectos Sociais, Humanos e Econômicos de Software (WASHES)
- 2020 **Reviewer** of the ACM CHI Late-Breaking Works
- 2019 **Sub-reviewer** of the ACM/IEEE International Workshop on Bots in Software Engineering (BotSE)

## VOLUNTEER

- 2020 **Student Volunteer** of the IEEE/ACM International Conference on Global Software Engineering (ICGSE)

## Mentoring

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### UNDERGRADUATE STUDENTS

#### Improving Bots Information Presentation on Pull Requests

*Eric Ribeiro and Ronan de Souza*

BSC DISSERTATION – PUC MINAS, BRAZIL

2021

In my daily supervision, two bachelor students implemented and evaluated a bot to summarize other bots outputs on GitHub platform. The project is co-supervised by Prof. Hugo de Paula.

#### The Role of Women in Information Technology: The case of IFTO

*Laira Giovana Martins Macedo*

BSC DISSERTATION – FEDERAL INSTITUTE OF TOCANTINS (IFTO), BRAZIL

2022 – Until now

In my daily supervision, the student conducted a survey with approximately 100 teachers and students from IFTO to understand their career pathways. The project is co-supervised by MSc Thatiane Rosa.

### GRADUATE STUDENTS

#### Code coverage bots on GitHub

*Alexander Sterk*

MASTER THESIS – TU DELFT, NETHERLANDS

2021 – Until now

In my daily supervision, the student conducted a survey with approximately 300 open-source project maintainers and contributors to understand the role of coverage bots. The project is co-supervised by Prof. Andy Zaidman.

## Teaching

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### Delft University of Technology

*Delft, The Netherlands*

LECTURER

Aug 2021 - Nov 2021

4 lectures (including evaluation) in Software Engineering Methods course for non-Computer Science undergraduate students at TU Delft [Class size  $\approx$  220 students].

#### 4Makers

*Campo Mourão, Paraná, Brazil*

INSTRUCTOR

Jan 2017 - Dec 2017

Robotics STEM Instructor for primary students [Class size  $\approx$  20 students].

#### Federal University of Technology - Paraná (UTFPR)

*Campo Mourão, Paraná, Brazil*

TEACHING ASSISTANT

Jun 2016 - Dec 2016

Teaching assistant for Database Management Systems course for Computer Science undergraduate students at UTFPR. Duties included tutoring lectures (weekly), and evaluating assignments and examinations. [Class size  $\approx$  15 students].

## Invited Talks

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### WORKSHOPS

#### Mining Software Repositories (MSR) conference

*Virtual*

SOFTWARE BOTS IN SOFTWARE ENGINEERING: BENEFITS AND CHALLENGES

May 2022

#### University of Mons – Software Evolution [graduate course]

*Mons, Belgium*

AUTOMATE GITHUB WORKFLOWS WITH BOTS

Feb. 2022

## GUEST LECTURER

### University of Mons – Software Evolution [graduate course]

AN EXTRA PAIR OF HANDS: THE ROLE OF BOTS IN COLLABORATIVE SOFTWARE DEVELOPMENT

Mons, Belgium

Feb. 2022

### Federal Institute of Tocantins (IFTO) – Advanced Topics in Software Engineering [undergraduate course]

IMPROVING DEVELOPERS COMMUNICATION ONE BOT AT A TIME

Virtual

Dec. 2021

### Federal University of Technology - Paraná (UTFPR) – Special Topics in Software Engineering [graduate/undergraduate co-convened]

BOTS ON OPEN-SOURCE SOFTWARE PROJECTS: TO INFINITY AND BEYOND!

Virtual

Apr. 2021

### Federal University of Technology - Paraná (UTFPR) – Experimental Software Engineering [graduate course]

APPLYING QUALITATIVE METHODS TO UNDERSTAND BOTS USAGE ON GITHUB

Virtual

Apr. 2021

### Northern Arizona University (NAU) – Open Source Software Development [graduate/undergraduate co-convened]

SOFTWARE BOTS ON OPEN-SOURCE SOFTWARE PROJECTS

Virtual

Nov. 2020

## GUEST SPEAKER

### It Will Never Work in Theory event

HOW PEOPLE USE GITHUB ACTIONS

Virtual

April. 2022

### Federal University of Amazonas – Usability and Software Engineering (USES) group

WHEN SCIENCE FICTION MEETS DESIGN... AND BOTS

Manaus, Brazil

Jan. 2022

### Eindhoven University of Technology – Software Engineering and technology (SET) group colloquium

THERE WILL BE A BOT FOR EVERYTHING: SHAPING THE FUTURE OF BOTS FOR SOFTWARE DEVELOPMENT

Eindhoven, The Netherlands

Nov. 2021

### Emílias - Armação em Bits Podcast

[LINK TO PODCAST - IN PORTUGUESE]

Virtual

Dec. 2021

## POSTER PRESENTER

### Alice & Eve Workshop

“BEEP BOOP! LET’S CHAT?” BOTS TO FOSTER DIVERSITY IN ONLINE PROGRAMMING COMMUNITIES

Nijmegen, The Netherlands

Nov. 2021

## Invited Workshops

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### Dagstuhl Seminar - BOTse: Bots in Software Engineering

INVITED ATTENDEE

Dagstuhl, Germany

Nov. 2019

### ICSE 2019 Student Mentoring Workshop (SMeW)

INVITED ATTENDEE

Montreal, Canada

May 2019

### First International Summer School in Research Methods for HCI/CSCW

INVITED ATTENDEE

Rio de Janeiro, Brazil

Mar. 2019

## Awards & Honors

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2021	<b>Service Recognition Award</b> , International Conference on Program Comprehension (ICPC)	<i>Virtual</i>
2021	<b>Scholarship</b> , Emerging Leaders in the Americas Program (ELAP)	<i>Canada</i>
2020	<b>Distinguished Paper Award</b> , ICSME 2020 IEEE TCSE Distinguished Paper Award	
2019	<b>Recipient</b> , SIGSOFT Travel Grants ICSE 2019 SMEW	<i>Canada</i>
2018	<b>Fellow</b> , National Council for Scientific and Technological Development (CNPq)	<i>Brazil</i>
2017	<b>Best Class Performance Award in the Undergraduate Degree in Computer Science</b> , Federal University of Technology - Paraná	<i>Brazil</i>

## References

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### **Prof. Dr Andy Zaidman**

FULL PROFESSOR AT DELFT UNIVERSITY OF TECHNOLOGY

A.E.Zaidman@tudelft.nl – <https://azaidman.github.io>

### **Prof. Dr Marco A. Gerosa**

ASSOCIATE PROFESSOR AT NORTHERN ARIZONA UNIVERSITY

Marco.Gerosa@nau.edu – <https://www.ime.usp.br/~gerosa>

### **Prof. Dr Alexander Serebrenik**

FULL PROFESSOR AT EINDHOVEN UNIVERSITY OF TECHNOLOGY

a.serebrenik@tue.nl – <https://www.win.tue.nl/~aserebre>