

# Luca Pascarella

Universit della Svizzera Italiana (USI)

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## RESEARCH INTEREST

My research interest is not limited to software engineering—that remains my main domain—but covers embedded development and hardware design. Besides actively research alternatives for predicting software defects with machine learning and artificial intelligence, I developed a real-time Bayesian error correction algorithm to overcome the non-linearity of the sigma-delta A/D converter, designed a multi-directional microphone to represent sound sources spatially, and characterized users' feedback on healthcare mobile applications to guide open-source developers.

## EDUCATION

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|-------------|---|
| 2020 – NOW  | <b>Postdoctoral Researcher</b><br>Faculty of Informatics<br><i>USI, Switzerland</i>                         |
| 2016 – 2020 | <b>Doctor of Philosophy</b><br>Computer Science<br><i>TU Delft, The Netherlands</i>                         |
| 2012 – 2015 | <b>Master of Science</b><br>110/110 CUM LAUDE<br>Software Engineering<br><i>University of Sannio, Italy</i> |
| 2007 – 2011 | <b>Bachelor of Science</b><br>Software Engineering<br><i>University of Sannio, Italy</i>                    |

## DOCTORAL RESEARCH

### Augmented Fine-Grained Defect Prediction for Code Review

My Ph.D. thesis focuses on predictive analytics for code review. I evaluated off-the-shelf defect prediction models in the realistic context of code review. I proposed two alternatives aimed at maximizing the effectiveness while reducing the prediction granularity. I also assessed the effectiveness of using alternative software metrics as measurable properties of software in machine learning models. Finally, I studied how defect prediction meet reviewers' needs during a code review.

## PUBLICATIONS

Some peer-reviewed contributions in journals and conferences.

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|---|------|
| “Evaluating SZZ Implementations Through a Developer-informed Oracle”<br><i>ICSE</i> | 2021 |
| “Classifying code comments in Java software systems”<br><i>EMSE</i>                 | 2019 |
| “Fine-Grained Just-In-Time Defect Prediction”<br><i>JSS</i>                         | 2018 |
| “Information Needs in Contemporary Code Review”<br><i>CSCW</i>                      | 2018 |

## AWARDS

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|------|--|
| 2018 | <b>Best Paper Award Honorable Mention</b><br><i>ACM Conference CSCW-2018</i>               |
| 2018 | <b>ACM International Travel</b><br><i>Student Research Competition MobileSoft-2018</i>     |
| 2017 | <b>ACM SIGSOFT Distinguished Paper Award</b><br><i>Mining Software Repository MSR-2017</i> |

## PROFESSIONAL APPOINTMENTS

*LPSystems B.V.* The Netherlands  
**CEO** 2019 – 2021

I co-founded and directed this sparkly company toward the design of a novel IoT protocol that combines FreeRTOS, MQTT, HTTP, and JSON.

*Software Improvement Group* The Netherlands  
**Research Intern** Jan 2018 – Mar 2019

I focused on: (1) understanding information needs in code review to design intelligent tools and (2) classifying code comments to improve defect prediction performance.

*IMDEA Software Institute* Spain  
**Research Visitor** May 2016 – Aug 2016

I contribute to a novel method for detecting non-essential code changes in version control systems by comparing software invariants before and after a code change.

*LP Systems* Italy  
**Entrepreneur** Jan 2010 – Dec 2012

I incorporated and led a vibrant company specialized in designing Systems-On-Module for embedded Linux systems to reduce the development time of new projects.

*Elettronica IN* Italy  
**Magazine Writer** 2008 – 2017

As an occasional magazine writer, I love to share my knowledge to teach new generations. I contribute with up to 22 projects for the top Italian magazine of applied electronics.

*High School L. Palmieri* Italy  
**Teacher** 2007 – 2009

I taught assembly and C in the public Italian vocational school of Industry and Handicrafts. Also, I advised a class of students during their summer internships.

## SKILLS

LANGUAGES	C, C++, Java, Python, JavaScript
FRAMEWORKS	OpenMP, MPI, MQTT, ActiveMQ React, TensorFlow, TensorRT, PyTorch
OTHER	Lecturer, Oral Presenting

## GRANTS

TRAVEL	ACM student research competition
ERASMUS PLACEMENT	ERASMUS-2013 project Supports for internship abroad