

Seminário em Engenharia Matemática

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14h00

Sala H211

Why Property-based Testing Matters

Pedro Vasconcelos

Departamento de Ciência de Computadores, Faculdade de Ciências, Universidade do Porto
Laboratório de Inteligência Artificial e Ciência de Computadores (LIACC)

Abstract:

Property-based testing (PBT) is a testing methodology for software components (e.g. functions, classes, web APIs, etc.). Instead of writing many specific test cases, a PBT test suite consists of *general properties* and (possibly) some *data generators*. An arbitrary number of tests can then be generated automatically by the testing framework.

PBT originated more than 20 years ago in the functional programming community, but has since been adopted in many other programming languages and paradigms. It has also seen relevant industry adoption in companies like Ericsson, Volvo, Dropbox and AWS.

This talk will present the main ideas behind PBT and show examples using Python's *Hypothesis* PBT library. Basic knowledge of Python is assumed, but no previous experience with PBT is needed.

We argue that the current trend towards the adoption of AI-based tools (such as ChatGPT, Co-Pilot, etc.) for code generation makes PBT more relevant as a practical lightweight tool for code verification. This talk language will be English or Portuguese, depending on the audience preference.

Short biography:

Pedro Vasconcelos did his BSc and MSc in Computer Science at the Faculty of Sciences of the University of Porto and his PhD at the University of St Andrews (Scotland). He has been an Auxiliary Professor at DCC/FCUP since 2008, where he lectured courses in programming languages, compilers and related subjects. He is an integrated member of LIACC (Artificial Intelligence and Computer Science Laboratory). His research interests include functional programming, type systems, property-based testing and programming pedagogy.