MSCA Postdoctoral Fellowships: Proposal writing bootcamp at FEUP
Postdoctoral Fellowship
Marie Skłodowska-Curie Actions
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SUPERVISOR INFORMATION	
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Department	Departamento de Engenharia Informática
Field(s) of research	Software Engineering (Design patterns, Microservices, Continuous delivery, Agile methods, Developer Experience)

PROJECT PROPOSAL	
Title (optional)	Supporting Software Quality Assurance By Improving Developer Experience

Brief project description

Despite decades of research on software quality assurance (QA), practice is still distant to delivering software without errors. Many automated tools integrate QA into every step in the software development life cycle, enabling continuous deployment and delivery. Despite that, high portion of quality assurance still depends on the manual involvement of human developers. Quality assurance can be cognitively demanding, e.g. when understanding complex code changes or engineering relevant test cases. Code review as part of QA is also highly dependent on developers effective interaction, while being susceptible to interpersonal conflicts and other issues hindering developers ability to identify defects in the code and developer experience in general.

QA nowadays faces a new set of challenges with the arrival of AI as a disruptive technology. While AI can make developers write more code, it creates more challenges for the developers who need to review, test and correctly document the code, e.g. due to higher code complexity, its lower reliability and longer feedback loops. This raises questions on how to integrate AI support into developers workflow in QA and support the developer experience (DX), rather than hinder it.

This project aims to investigate AI integration into QA software tools to support the developer-AI interaction towards a quality DX and productivity in QA. It aims to build AI supported tools for developers in various QA contexts (CI/CD, code review, testing). The methods will follow an inter-disciplinary approach, using concepts and methods from psychology, DX and productivity and human-AI interaction to conceptualize and measure the reduction in cognitive load, flow state and length of process feedback loops – the core components of a quality DX.