

## Context aware COPD adaptation system

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### Abstract

The separation of concerns as a conceptual paradigm aims to manage the complexity of the software systems by dividing them into different concerns and aspects. The benefits of this paradigm such as adaptability, reusability and maintenance, have been key drivers of its adoption and usability, particularly in healthcare systems. Developing a context aware healthcare system with adaptive, flexible and maintainable architecture requires modularity because we need to make decisions based on context of patients. In the pervasive and emerging architectures such as Cloud computing, Fog Computing, Mobile Edge Computing and Internet of Things, the fundamental characteristic of the applications is their ability to adapt or to react according to the information of the context. The pervasive computing made many of our daily life's tasks much easier. We have developed COPD healthcare system to protect patients against risk factors (context). In this talk, I will describe briefly this COPD system, then discuss three adaptation approaches based on separation of concerns, such as i) static (Aspect-oriented Programming), ii) Configuration (spring), and iii) dynamic (OSGi, MAPE). Then, I will illustrate dynamic approach to support adaptability of COPD diseases. In addition, I will give an overview of our context-aware healthcare systems.

### Biography

Hamid Mcheick is a full professor in Computer Science department at the University of Québec at Chicoutimi, Canada. He has more than 20 years of experience in both academic and industrial area. He has done his PhD in Software Engineering and Distributed System in the University of Montreal, Canada. He is working on design and adaptation of distributed and smart software applications. He has supervised many post-doctorate, PhD, master and bachelor students. He has nine book chapters, more than 60 research papers in international journals and more than 130 research papers in international/national conference and workshop proceedings in his credit. Prof. Mcheick has given many keynote speeches and tutorials in his research area, particularly in healthcare systems, pervasive and ubiquitous computing, distributed software architectures, software connectors, separation of concerns, service-oriented computing, internet of things (iot), mobile edge computing, fog computing, and cloud computing. mcheick has gotten many grants from governments, industrials, and academics. He is a chief in editor, chair, co-chair, reviewer, member in many organizations (such as IEEE, ACM, Springer, Elsevier, Inderscience) around the world.



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