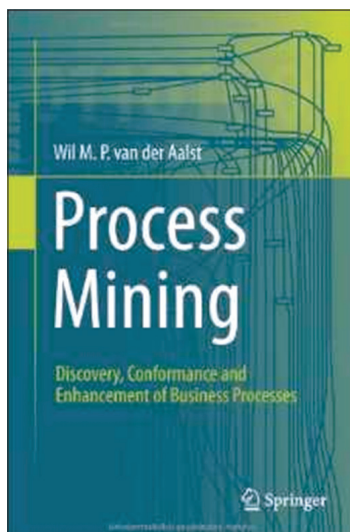**HIR**

Healthcare Informatics Research

Process Mining: Discovery, Conformance and Enhancement of Business Processes

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The importance of process management is being emphasized in most recent management techniques. The traditional method of identifying processes followed by modeling was for consultants to interview domain experts. This is effective in identifying key processes and developing process models, but process modeling may be inadequate if domain experts lack process-related understanding or experience. Further, it is difficult to present processes that are outlying or deviate from the reasoning of domain experts.

Process management has been a constant issue even in the field of healthcare informatics. The healthcare environment involves many independent processes, which come together to form a highly complex process model. The author refers to this as the Spaghetti Process Model. For such a complex process model, even domain experts will not have complete understanding of processes, and it will be impossible to develop a process model that is a 100% reflection of reality. There will always be outlying processes unaccounted for in the process model, and these will cause problems in process analysis and remodeling.

With developments in IT technology, data in event logs are being stored in information systems. Event logs contain pertinent information on processes, but their importance has not received sufficient attention until now.

Beginning many years ago, several research groups have attempted to use event logs in process modeling. The most successful among these groups is the team led by Wil van der Aalst, a professor at the University of Eindhoven Technology and also the author of this book.

Process Mining: Discovery, Conformance and Enhancement of Business Processes is the research team's first book on process mining. Although published some time ago, it offers the

most comprehensive overview of process mining. The editorial review by Springer is as follows:

"*More and more information about business processes is recorded by information systems in the form of so-called 'event logs'. Despite the omnipresence of such data, most organizations diagnose problems based on fiction rather than facts. Process mining is an emerging discipline based on process model-driven approaches and data mining. It not only allows organizations to fully benefit from the information stored in their systems, but it can also be used to check the conformance of processes, detect bottlenecks, and predict execution problems.*"

This book consists of five parts. Part I introduces various concepts required to understand the book, including process modeling, model-based process analysis, and data mining. Part II describes the step-by-step process in deriving process models from event logs, which is the most important task in process mining. Part III moves beyond discovering the control flow of processes and highlights conformance checking, and organizational and time perspectives. Part IV uses the popular open-source tool ProM and guides readers through real-world applications of process mining. Finally, Part V takes a step back, reflecting on the material presented and the key open challenges.

Above all, the greatest advantage of this book is that it contains reader-friendly information, ranging from process mining basics to real-world applications using open-source tools, in a single volume. It is intended for business process analysis, business consultants, process managers, graduate students, and business process management (BPM) researchers. Since the author uses case studies of Philips Healthcare and the Academic Medical Center of the University of Amsterdam, the book can be enjoyed not only by experts in industrial engineering, but also in healthcare.

After publishing the book, the author contributed to the Process Mining Manifesto of the IEEE Task Force on Process Mining. The manifesto, which contains more compact information compared to the book, is highly recommended for those interested in process mining. [1]

Reference

1. IEEE Task Force on Process Mining. Process Mining Manifesto [Internet]. Eindhoven: The University of Eindhoven Technology; c2012 [cited at 2014 Apr 1]. Available from: http://www.win.tue.nl/ieeetfpm/doku.php?id=shared:process_mining_manifesto.