

# Discovering Petri nets: It's a kind of magic

It is a great pleasure to contribute to this Liber Amicorum for my magical friend Grzegorz Rozenberg. Grzegorz is not only a great scientist, but also has many other talents and is a joy to interact with. Therefore, I would like to share some personal experiences.

## The Godfather of the Petri Net Community

Grzegorz has been the chairman of the Steering Committee for the International Conferences on Theory and Applications of Petri Nets (ICATPN) in the period from 1981 to 2004. He has been successfully driving this wonderful conferences series for over two decades. In 2003, I organized the Petri net conference in Eindhoven together with Kees van Hee. This conference was a big success and quite special because Carl Adam Petri gave a talk after not having attended the conference for many years.



Grzegorz encouraged me to organize a co-located event next to the Petri net conference. As many know, his encouragements can be quite “persistent”. So how could I refuse? Under his kind pressure, I decided to organize the first Business Process Management conference (BPM 2003). This was an immediate success. Over the last 15 years I have been serving as chair of the Steering Committee of the international BPM conference series. Here, I’m using the tactics that Grzegorz applied on me. This worked out well. Actually, the BPM conference has grown to a conference series that is 2 or 3 times the size Petri net conference (in terms of submissions and participants). I’m still grateful for Grzegorz’s encouragements and advice.

Today, Petri nets seem to be less “en vogue”, however, they are part of any computer science curriculum and this is due to the great work done by Grzegorz. I consider him to be the “godfather” of our wonderful Petri net community!

## From Regions to Process Mining

My own research first shifted from the modeling and simulating logistic systems in the eighties to workflow modeling and verification in the nineties. During the last decade it shifted again from workflow automation and business process management to process mining. Petri nets have always been a valuable tool in all of these endeavors.



My current focus is on process mining, a “magical” area of research. One of the main challenges in process mining is process discovery, i.e., learning process models (often Petri nets) from event logs. This is closely related to Petri net synthesis and the theory of regions. Together with Andrzej Ehrenfeucht, Grzegorz Rozenberg provided the foundations of region theory. The two papers on 2-structures that appeared in Theory of Computer Science in 1990 can be seen as the starting point for today’s region theory. This is just one example of the influence of Grzegorz’s groundbreaking work. I’m most familiar with his work on the theory of concurrent systems, transition systems, and traces (often using nets). However, he also made important contributions to the theory of graph transformations, to formal languages and automata theory, and (more recently) to natural computing, including molecular computing, computation in living cells, self-assembly, and theory of biochemical reactions.

### **Cultivating Habits**

Grzegorz is not only a great scholar; he also has a wonderful personality. He is far from boring and always eager to learn about people’s interests and passions. His is performing magician and a Jheronimus Bosch expert. I spent one year at the University of Colorado in Boulder where Grzegorz is adjoint professor and a regular visitor. These and other encounters enabled me to see that he likes to cultivate his habits. He knows the thinks he likes and goes for it. For example, unlike many Dutch computer science professors he has had few PhD students. He rather travels around the world to work with the best people in his field. He likes to stick to his routines. For example, he likes to skip the main course and go for two desserts instead. Above all, he is friendly and caring. Together, Grzegorz and Maja form a wonderful team, hopefully for many years to come!

Grzegorz: Enjoy your 75<sup>th</sup> birthday!

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