

## University of Groningen

### Understanding crowd behaviour

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# A word of thanks

When I reflect over my PhD time, I enter a mood of gratefulness and happiness. These years are filled with valuable lessons that shaped me and my future path strongly. Apart from developing a passion for my work, I learned a very important thing: science (especially a PhD) is a together-thing on your own (in Dutch: een samending in je eentje). My thesis is not very different, it is result of the interplay between my environment and me. In which the level of description and analysis remains, of course, on the Nanda-level ;) - just like my CROSS agents. I want to take the opportunity here to highlight some element of my social environment that played an important role in this thesis.

Let me start with the fixed elements of my scientific social environment: my supervisors. René, Wander and Tony, you all have been enthusiastic about this project from day 1. It is a delight to have this enthusiasm as a base. René you're my prof or like the Germans say, my 'DoktorVater'. You taught me a lot about myself through our interactions and these insights are really important to me. Your ability to reason on a high abstraction level is crucial in exploring complex new domains - thank you for showing me the tools to deal with complex problems.

Wander, you are scientist with strong social skills, a value I highly appreciate. It did not only show me that science can be social, but also helped me find my place and feel home as a scientist. As a scientist you are a skilled time-manager, this continues to amaze me. The fact that I always 'disturb' and therefore, I am always welcome to barge into your office - love it! In terms of content, your alertness on the concrete part of my computational model and experimentation were indispensable. I enjoyed our fruitful discussions about simulation models and experiments and look forward to having many more.

Tony, without you, there wouldn't be a thesis on crowd behaviour and simulation. You created this opportunity for me to have two research surroundings (Academia and a Applied Research Institute). This was a stimulating and joyful experience that taught me a lot about work, people, communication and science. Your support throughout these years was at any moment very valuable to me. Your straight and almost brute remarks are not only incredibly funny, but were exactly what I sometimes needed to hear to relativize the matter (sometimes the use of the 'tang' is nice :), but you were definitely right it was a style-thing).

My research took place at 2 institutions RUG (University of Groningen) and TNO (Dutch Research Institute in Applied Science). Having two workplaces can be difficult at times, however it was mainly was a great opportunity to learn about the Uni-way and the applied science (& practice)-way. I thank both RUG & TNO for this unique

opportunity.

One of the benefits of having two workplaces is having a lot of nice colleagues. In both the department of Strategy and Innovation (RUG) and Human in Command (HIC|TNO) I found my place. A special feeling goes out to my HIC-colleagues (TNO) where I spent most of my time and enjoyed being part of the group, thank you all very much.

To my very close colleagues - Kristian, Marloes, Martin and Niels (RUG) - Roos, Wim, Bart, Saar, Nienke, Inge and Remco (TNO), I want to thank you for listening, your advice, the sharing of the wonderful and the difficult moments of daily (PhD) life, and most importantly, having a good laugh together. For me it is a pleasure and honour to be surrounded by such bright minds with warm hearts. We all have our unique stories and the few words I can say here cannot fully reflect what this means to me - thank you all for this unique time together.

For me, some people made it easier to be at two places. This involves making me feel at home, but also practically helping me with getting things done. I like to thank the secretaries (RUG) - Sonja, Hennie, Jeanette and Truusje for always helping me out, but also for creating a warm atmosphere. Research school SOM (RUG), thank you for supporting my non-standard initiatives, you really enrich the development of PhD students. With a special thanks to Ellen, your warm smile and willingness to explain and help is so nice and valuable. Martin, you were an excellent PhD coordinator in the sense that you made possible the above stated support, however my appreciation moves beyond that. Thank you for your support during more difficult phases, they mean a lot to me.

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Otto, Sara, Elaine and Martina: my crowd research/police academy friends! You helped me forming a view on crowds not only by simply going to a real one, but also by discussing theory on crowds and giving me valuable feedback that helped me to place myself in this research area. It is great to share a topic and passion for research to generate knowledge that can be used in real life.

Martin, you helped me coding my agents in the very beginning. We made them walk! Thank you for doing this together with me, it is great having a friend aka robot-psychologist involved and reliving the fun of programming together! Concerning *da-braitenberg* - it's timeless, just works for us, real collision-avoiding should never be coded explicitly :).

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Otto, you have become a dear friend of mine, with whom I love to work together. You taught me so much during the end phase of writing my diss, I just don't know where to start to thank you. I just want to say I enjoyed this time that was a road full of hills, travelling this route together with you made the difference. Your ability to discuss, understand my work into great detail, ask the most relevant (and often painful) questions. I am more than impressed. You showed me how to communicate in writing, I find it sooo valuable to have words for all the ideas that live in my head. I remain in gratitude and look forward to continue creating roads in impassable areas.

Not only was I surrounded by intelligent people with a variety of expertise, I also consider myself very lucky for having you - my dear friends and family. I thank you all for your support and foremost your patience during the last couple of years. It is really special to be surrounded by people that support me whatever goal I choose to pursue. Thank you for moments of relaxation, doing sports, talking and laughing. Saar, I specially want to thank you for being my climbie and friend. I love our weekly climbing sessions that work so well for us both to clear our heads. Annelies you seem to be there where the tides turn. Your timing was brilliant, thank you for your trust and the opportunity you gave me. Hans en Riet, jullie geduld, interesse maar vooral warmte staat me nog steeds bij, jullie aandeel in steun is niet gering en ik ben en blijf jullie daar erkentelijk voor. Wim, dankje dat je mijn maatje was.

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