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Network analysis methods for smart inspection in the transport domain

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Curriculum Vitae

Gerrit Jan de Bruin was born in Amersfoort, the Netherlands, on the 31st of October 1993. He completed high school at the gymnasium level with bilingual education at "Van Lodenstein College" in 2012. Gerrit Jan was also an active mystery shopper and IT worker during and after high school.

Afterward, he obtained the VNCI Topsector Chemie grant to study a B.Sc. in chemistry at Utrecht University. During his B.Sc., he got married to his wife, Mirjam. He graduated in 2015.

Gerrit Jan was particularly interested in the measurement aspect of chemistry. He therefore acquired his M.Sc. in Analytical Chemistry at both the Free University Amsterdam and the University of Amsterdam in 2017. His Master's thesis, titled "Efficient compliance monitoring", was supervised by Johan Westerhuis and Jasper van Vliet and conducted at the Human Environment and Transport Inspectorate.

After that, he was admitted to Leiden University, the Netherlands, to conduct the research presented in this doctoral thesis, funded by the Dutch Ministry of Infrastructure and Water Management. Frank Takes, Cor Veenman, and Jaap van den Herik supervised him.

At the moment, Gerrit Jan is a Scientist in Air Quality and Climate at TNO, an independent not-for-profit research organization, working towards reducing emissions of air pollutants and greenhouse gases.

Publications

While working towards this thesis, the following contributions were made.

- G. J. de Bruin, A. Pereira Barata, C. J. Veenman, H. J. van den Herik, and F. W. Takes. „Fair automated assessment of non-compliance in cargo ship networks." *EPJ Data Science* 11, 13 (2022). DOI: 10.1140/epjds/s13688-022-00326-w
- G. J. de Bruin, C. J. Veenman, H. J. van den Herik, and F. W. Takes. „Supervised temporal link prediction in large-scale real-world networks." *Social Network Analysis and Mining* 11, 80 (2021). DOI: 10.1007/s13278-021-00787-3
- G. J. de Bruin, C. J. Veenman, H. J. van den Herik, and F. W. Takes. „Experimental evaluation of train and test split strategies in link prediction." In: *Proceedings of the 9th International Conference on Complex Networks and Their Applications*. Studies in Computational Intelligence 994. Springer, 2021, pages 79–91. DOI: 10.1007/978-3-030-65351-4_7
- G. J. de Bruin, C. J. Veenman, H. J. van den Herik, and F. W. Takes. „Understanding dynamics of truck co-driving networks." In: *Proceedings of the 8th International Conference on Complex Networks and Their Applications*. Studies in Computational Intelligence 882. Springer, 2020, pages 140–151. DOI: 10.1007/978-3-030-36683-4_12
- G. J. de Bruin, C. J. Veenman, H. J. van den Herik, and F. W. Takes. „Understanding behavioral patterns in truck co-driving networks." In: *Proceedings of the 7th International Conference on Complex Networks and Their Applications*. Studies in Computational Intelligence 813. Springer, 2018, pages 223–235. DOI: 10.1007/978-3-030-05414-4_18
- A. Pereira Barata, G. J. de Bruin, F. W. Takes, C. J. Veenman, and H. J. van den Herik. „Finding anomalies in waste transportation data with supervised category models." In: *Proceedings of the 27th Belgian Dutch Conference on Machine Learning (BeNeLearn)*. Dec. 1, 2018.
  https://hdl.handle.net/1887/69186 (visited on Mar. 29, 2022)

- A. Pereira Barata, G. J. de Bruin, F. W. Takes, C. J. Veenman, and H. J. van den Herik. „Data-driven risk assessment in infrastructure networks." In: *ICT.open*. 2018. https://hdl.handle.net/1887/3283777 (visited on Apr. 29, 2022)

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I want to thank Cor Veenman for his critical thoughts on any writing I provided. It was always good when we ran into each other at unexpected places. Likely this still remains so, as it so happens that we remain colleagues.

Jaap van den Herik, you have a unique way of supervising your Ph.D. candidates. Thank you for your insightful comments on both writing and life as a researcher in general. Also, probably not known to the outsider, Jaap has a remarkable eye for detail. Every error was caught, whether it was an extra space, a misspelling, or an outdated link in a reference. In extension, I want to thank Tim van Tongeren, Jan van den Bos, Mattheus Wassenaar, and Jaap van den Herik for making this journey possible in the first place.

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António and Alexa, I owe you much. To start, I really enjoy the way you cook. Your dishes are always so delicious and flavorful. Also, to the confusion of other guests, meals do not have a clear start or end time at your place. You eat steak for lunch when you want. On a more serious note, António and I did our Ph.D. in a quite what one could call “anti-correlated” manner; when I no longer saw the project end well, you would

encourage me (and probably vice versa), helping each other through the endless journey a Ph.D. is.

Alexandra, Andrius, Anna, Anne, Carolina, Charles, Dominika, Furong, Hanjo, Hugo, Iris, Jan, Marios, Marie, Matthias, Max, Michiel, Mike, Lieuwe, Lise, Rachel, Rens, Riccardo, Roy, Sander, Solomiia, Thomas, Quinten, Xue, Yuchen, and many more, thank you for the good times at LIACS. Because of the growing tendency of LIACS, it was hard to keep track of all people I met, but I sure liked the cultural diversity in our group. I thank each of you for all the moments we had together. Thomas, for the open doors of "your" office when I was finalizing this thesis.

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My colleagues from TNO, thank you for your patience and the opportunity to be distracted while putting the last hand at my thesis. I like your can-do mentality and your commitment to make the world a little better.

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Last, Mirjam. I owe you so much. Too many times, I struggled hard, especially mentally. You supported me in thinking positively. Your love has always been so much for me, without conditions, and that was what I needed. Without you, this would not have happened.

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