On metrics and models for multiplex networks

Gemmetto, V.

Citation
Gemmetto, V. (2018, January 16). *On metrics and models for multiplex networks*. Retrieved from https://hdl.handle.net/1887/61132

Note: To cite this publication please use the final published version (if applicable).

Cover Page

Universiteit Leiden

Leiden University Repository

The following handle holds various files of this Leiden University dissertation:
http://hdl.handle.net/1887/61132

Author: Gemmetto, V.
Title: On metrics and models for multiplex networks
Issue Date: 2018-01-16

List of publications

[1] V. Gemmetto, A. Barrat, C. Cattuto (2014) 'Mitigation of infectious disease at school: targeted class closure vs school closure', *BMC Infectious Diseases* **14** (1), 695

[2] V. Gemmetto, D. Garlaschelli (2015) 'Multiplexity versus correlation: the role of local constraints in real multiplexes', *Scientific Reports* **5**, 9120

[3] V. Palchykov, V. Gemmetto, A. Boyarsky, D. Garlaschelli (2016) 'Ground truth? Concept-based communities versus the external classification of physics manuscripts', *EPJ Data Science* **5** (1), 28

[4] V. Gemmetto, T. Squartini, F. Picciolo, F. Ruzzenenti, D. Garlaschelli (2016) 'Multiplexity and multireciprocity in directed multiplexes', *Physical Review E* **94** (4), 042316

[5] A. Maulana, V. Gemmetto, D. Garlaschelli, I. Yevesyeva, M. Emmerich (2016) 'Modularity maximization in multiplex network analysis using many-objective optimization', *Proceedings of the 2016 IEEE Symposium Series on Computational Intelligence*, 1

[6] A. Martini, A. Lutov, V. Gemmetto, A. Magalich, A. Cardillo, A. Constantin, V. Palchykov, M. Khayati, P. Cudré-Mauroux, A. Boyarsky, O. Ruchayskiy, D. Garlaschelli, P. De Los Rios, K. Aberer (2017) 'ScienceWISE: topic modeling over scientific literature networks', *arXiv*:1612.07636

[7] V. Gemmetto, A. Cardillo, D. Garlaschelli (2017) 'Irreducible network backbones: unbiased graph filtering via maximum entropy', *arXiv*:1706.00230

[8] V. Gemmetto, D. Garlaschelli (2017) 'Reconstruction of multiplex networks with correlated layers', *arXiv*:1709.03918

[9] F. Picciolo, V. Gemmetto, F. Ruzzenenti (2017) 'A network analysis of the global energy market: an insight on the entanglement between crude oil and world economy', submitted

Curriculum vitæ

I was born in Alba (Italy) on the 10th of August 1989. I graduated in 2008 from the Leonardo Cocito high school in Alba, with specialization in mathematics and science. Afterward, I started my Bachelor Degree in Physics at University of Torino (Italy), where I graduated in 2011. In 2013 I graduated, from the same university, in Physics of Complex Systems. In November 2013 I moved to Leiden (the Netherlands), where I enrolled as a PhD candidate at the Instituut-Lorentz for Theoretical Physics. In November 2017 I moved to Amsterdam to work as a quantitative researcher at Duyfken Trading Knowledge.

Acknowledgements

This thesis includes most of the work I have done in the last four years. However, no man is an island, so this humble piece of science would have not been possible without the help and support of several people, who definitely deserve a mention.

First of all, I thank my supervisor Diego Garlaschelli. His vast knowledge and unlimited patience led me to the finish line; the freedom he gives to his collaborators and the relaxed environment he creates around himself helped me to increase my scientific and social skills. I also thank my promotor Wim van Saarloos for his cooperation during the last bits of PhD. I thank my former supervisors, Ciro Cattuto and Alain Barrat, for their mentoring and for introducing me to the research community. I thank Alex, Assaf and Vasyl, with whom I shared my entire PhD, for their guidance and friendship. I thank Elena, who arrived later but soon became an important figure in my life, a confidant and a good friend. I thank all the current and former members of my highly diversified group - Tiziano, Qi, Andrea, Janusz and all the undergraduate students - for the time spent together, and all the colleagues of the Institute with whom I shared coffee breaks and lunches. I thank my students, Ruben and Nedim, for their proactiveness and - sometimes misplaced - trust; in particular, I thank Nedim for the Dutch translation of the summary (together with Peter), and for reminding me not to judge a book from its cover. I thank all the co-authors that I have not mentioned so far, in particular Alessio, Franco, Francesco, Alexey, Andrea, Paolo, Asep and Michael. I thank Richard, with whom I shared my teaching duties. And I thank Fran, Marianne, Barry, Monique and all the secretary staff for their Dutch efficiency.

Life, however, does not consist only of science, and sometimes brings us to unknown and unpleasant territories. I therefore thank Lucie, who effectively helped me in the toughest moments. I thank my parents and my sister for their constant support and for reminding me that I will never be alone. And, finally, I thank Gabriele, the key to my peace of mind, who will always be the person without whom I would not be here.