Hochschule Worms
University of Applied Sciences

NETWORK INFORMATION HIDING

CH. 9: HOW TO DESCRIBE & CATEGORIZE A NEW HIDING METHOD?

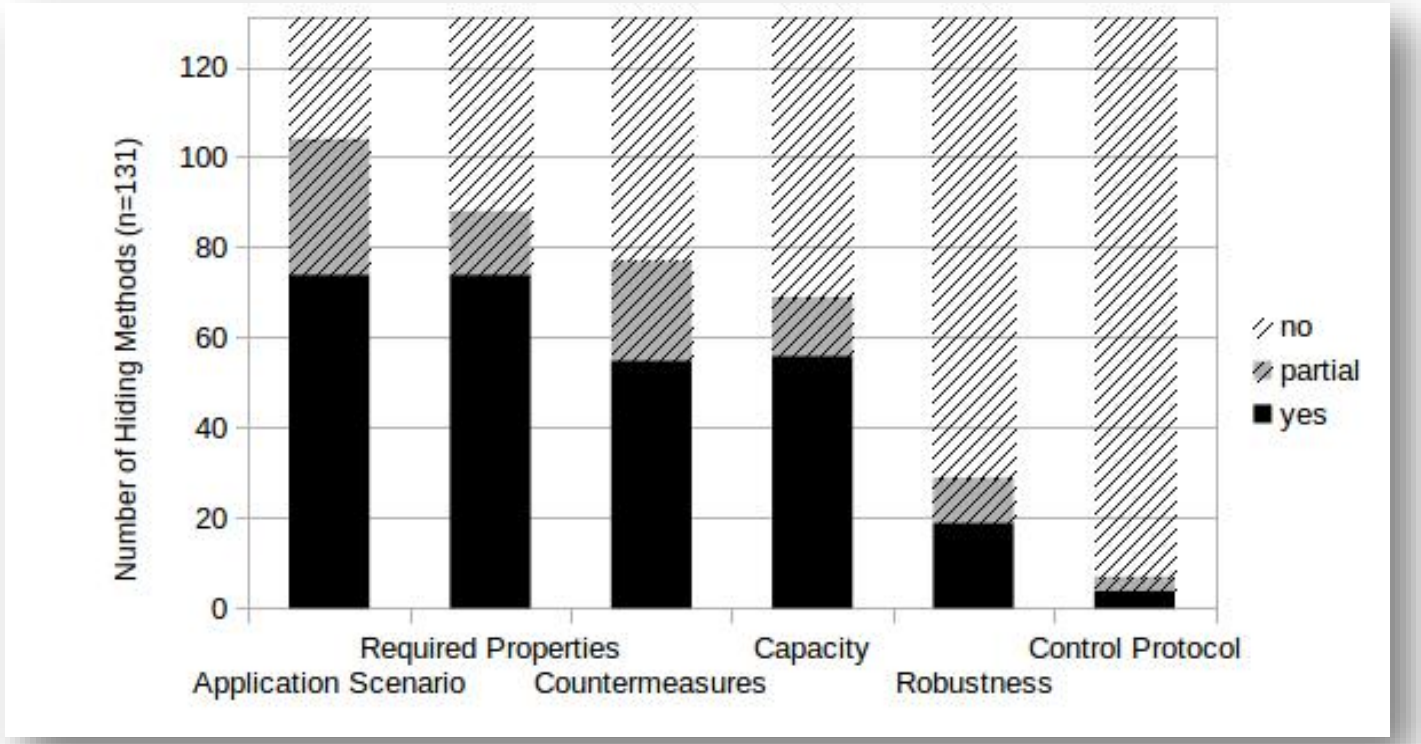
Prof. Dr. Steffen Wendzel
Worms University of Applied Sciences

https://www.wendzel.de (EN) | https://www.hs-worms.de/wendzel/ (DE) @cdp_xe (Twitter)

Online Class: https://github.com/cdpxe/Network-Covert-Channels-A-University-level-Course/

Analysis of 131 Hiding Techniques [1]

Descriptions of hiding techniques in scientific papers highly vary, rendering it difficult to compare them:



[1] S. Wendzel, W. Mazurczyk, S. Zander: Unified Description for Network Information Hiding Methods, in: Journal of Universal Computer Science, 2016.

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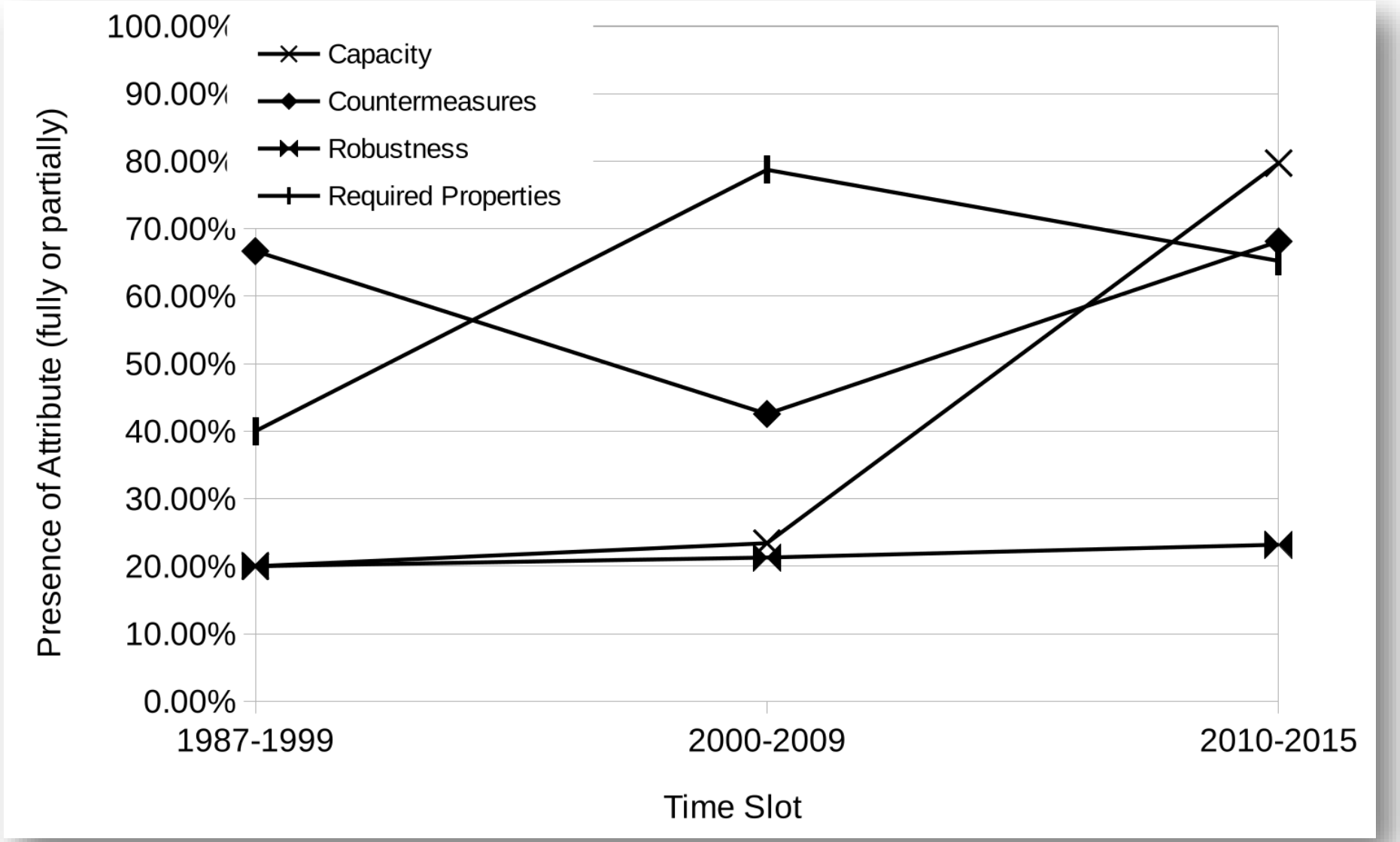

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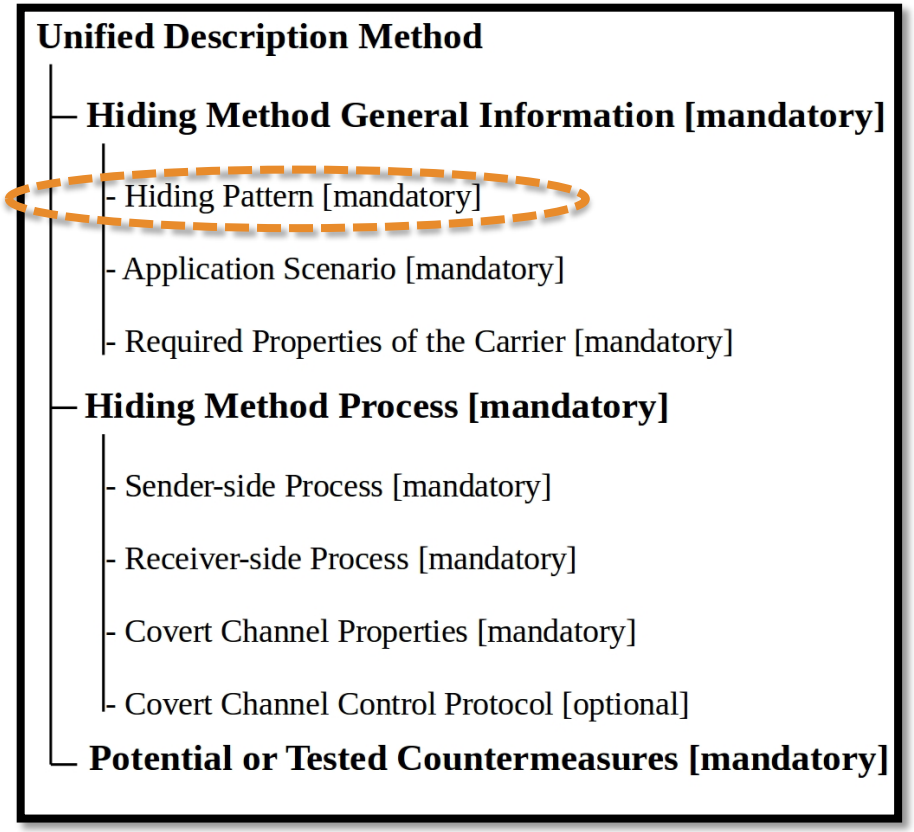
Describing Hiding Methods Using Patterns [1]

- We proposed a method to unify the descriptions within new publications. Our method is simply called a **unified description method**.
- Detailed description of the attributes + examples can be found in the paper.



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Two Examples for Applying the Unified Description Method …

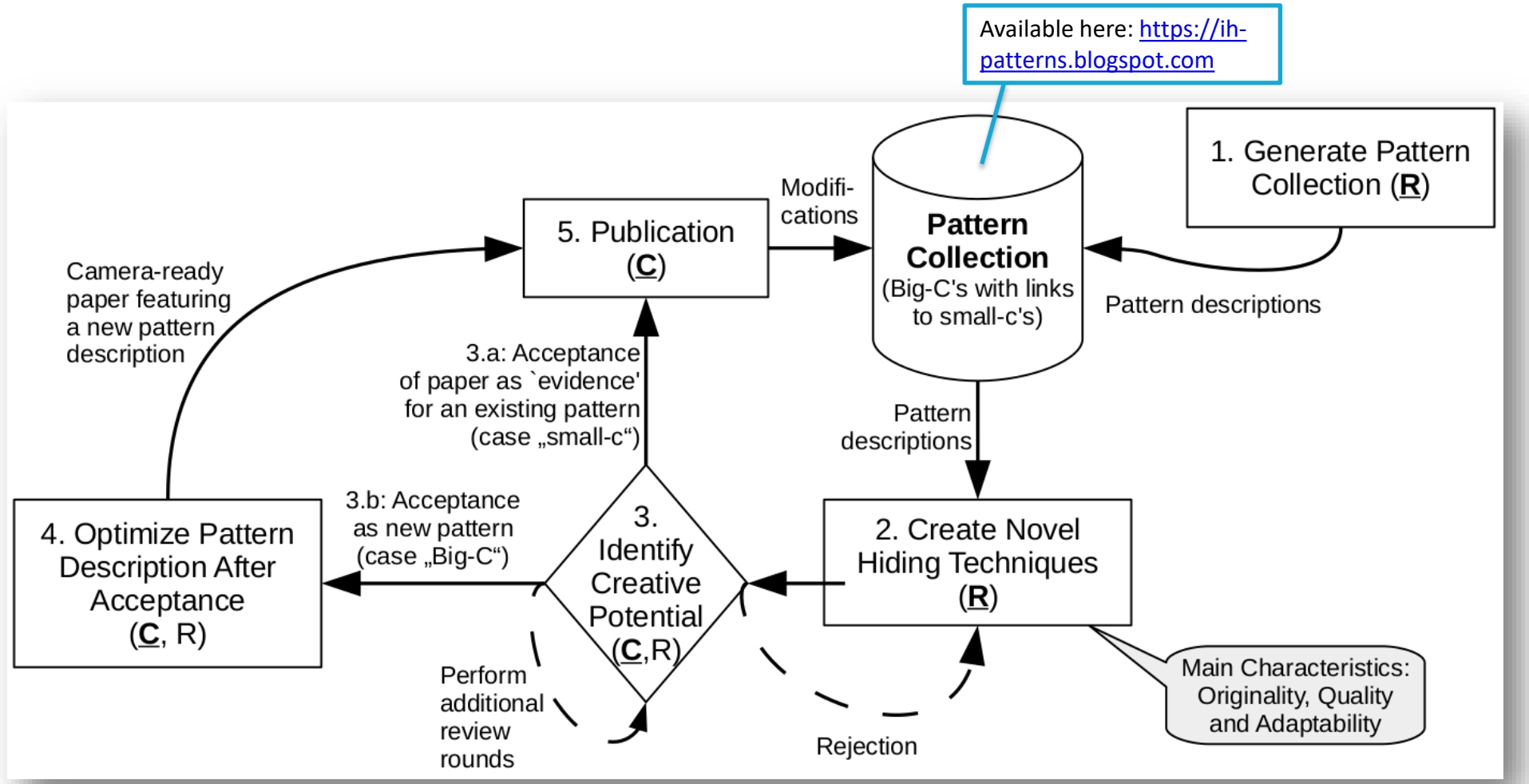
… can be found here: http://www.jucs.org/jucs_22_11/unified_description_for_network

Or in the work of others. e.g.

- Graniszewski, Waldemar, Jacek Krupski, and Krzysztof Szczypiorski. "SOMSteg-Framework for Covert Channel, and its Detection, within HTTP." *Journal of Universal Computer Science* 24(7), 2018: 864-891.

- Mileva, Aleksandra, Aleksandar Velinov, and Done Stojanov. "New Covert Channels in Internet of Things." in Proc. *SECURWARE 2018*, 2018: 30-36.
  - … and follow-up paper at Int. Journal Adv. Sec., in press.

Patterns as a Tool to Prevent Scientific Re-Inventions [1]



[1] S. Wendzel and C. Palmer: *Creativity in Mind: Evaluating and Maintaining Advances in Network Steganographic Research*, J.UCS, Vol. 21, 2015.

Short Summary of Key Topics

Information Hiding faces inconsistency in its experimental methodology and in its terminology/taxonomy.

- **Patterns** and the **Unified Description Method** are means to improve the situation.
  - Both approaches (especially patterns) already applied by the research community.
- They can also help **Limiting Scientific Re-inventions** in the domain.
- Results of **Experimental Replication** underpin the need for better experimental testing.