

## Sequential Learning on Graphs With Limited Feedback (Invited Talk)

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In this talk, we investigate the structural properties of certain sequential decision-making problems with limited feedback (bandits) in order to bring the known algorithmic solutions closer to a practical use including, online influence maximization or sequential recommender systems. To address these structured settings, we can always ignore the graph and use known algorithms for multi-armed bandits. However, their performance scales unfavorably with the number of nodes  $N$ , which is undesirable when  $N$  means a thousand of sensors or a million of movies. We describe several graph bandit problems and show how to use their graph structure to design new algorithms with faster learning rates, scaling not with  $N$  but with graph-dependent quantities, often much smaller than  $N$  in real-world graphs.

*Michal Valko absolvoval magisterské štúdium informatiky na FMFI UK v Bratislave, doktorandské štúdium ukončil na University of Pittsburgh v oblasti machine learning a habilitáciu v sequential machine learning obhájil na École Normale Supérieure de Cachan. Od roku 2011 pôsobí ako vedecký pracovník v tíme SequeL na Francúzskom národnom inštitúte pre informatiku a aplikovanú matematiku - Inria. Hlavnou oblasťou jeho výskumu je machine learning, kde sa špecializuje na metódy, ktoré minimalizujú objem dát, ktoré treba poskytnúť algoritmom predtým, než začnú byť užitočné.*