

NATIONAL UNIVERSITY OF SINGAPORE

School of Computing

C S S E M I N A R

Title: **Content Recommendation for Viral Social Influence**

Speaker: Associate Professor Panagiotis Karras
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Venue: Executive Classroom, COM2-04-02

Chaired by: Dr Yap Hock Chuan, Roland, Associate Professor, School of Computing
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Abstract:

How do we select content that will become viral in a whole network after we share it with friends or followers? Significant research activity has been dedicated to the problem of strategically selecting a seed set of initial adopters so as to maximize a meme's spread in a network. Yet this line of work assumes that the success of such a campaign depends solely on the choice of a tunable set of initiators, regardless of how users perceive the propagated meme, which is fixed. Yet in many real-world settings, the opposite holds: a meme's propagation depends on users' perceptions of its tunable characteristics, while the set of initiators is fixed.

We address the natural problem that arises in such circumstances: Suggest content, expressed as a limited set of attributes, for a creative promotion campaign that starts out from a given seed set of initiators, so as to maximize its expected spread over a social network.

To our knowledge, no previous work addresses this problem. We find that the problem is NP-hard and inapproximable. As a tight approximation guarantee is not admissible, we design an efficient heuristic, Explore-Update, as well as a conventional Greedy solution. Our experimental evaluation demonstrates that Explore-Update selects near-optimal attribute sets with real data, achieves 30% higher spread than baselines, and runs an order of magnitude faster than Greedy.

(Work to appear in SIGIR 2017)

Biodata:

Panagiotis Karras (Panos) is an Associate Professor in Computer Science at Aalborg University. His interests are in the confluence of data management, data mining, and

database security. He earned a Ph.D. in Computer Science from the University of Hong Kong and an M.Eng. in Electrical and Computer Engineering from the National Technical University of Athens. He has held positions at the Skolkovo Institute of Science and Technology, Rutgers Business School, the National University of Singapore, the University of Zurich, and the Technical University of Denmark. Panos' work has been published in over 50 research articles, awarded by the Hong Kong Institute of Science, and funded by the Lee Kuan Yew Endowment Fund and the Skolkovo Foundation. He regularly serves as a program committee member and referee for the major international conferences and journals in the above areas.