

Department of Systems Engineering and Engineering Management

Seminar Series

To Explain or To Predict?

Prof. Galit SHMUELI

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Date	5 May 2016 (Thursday)
Time	10:30am - 11:30am
Venue	P6921, 6/F, AC1

Abstract

Statistical modeling is a powerful tool for developing and testing theories by way of causal explanation, prediction, and description. In many disciplines, there is near-exclusive use of statistical modeling for causal explanation with the assumption that models with high explanatory power are inherently of high predictive power. Conflation between explanation and prediction is common, yet the distinction must be understood for progressing scientific knowledge and for proper use in practice. While this distinction has been recognized in the philosophy of science, the statistical and data mining literature lack a thorough discussion of the many differences that arise in the process of modeling for an explanatory versus a predictive goal. In this talk I will clarify the distinction between explanatory and predictive modeling and reveal the practical implications in terms of data analysis. I will also describe how predictive modeling can be useful for advancing theory, in the context of scientific research.

Two relevant papers:

Shmueli, G., and O. Koppius, "Predictive Analytics in Information Systems Research", MIS Quarterly, vol. 35, issue 3, pp. 553-572, 2011

Shmueli, G., "To Explain or To Predict?", *Statistical Science*, vol. 25, issue 3, pp. 289-310, 2010

About the Speaker

Galit Shmueli is Tsing Hua Distinguished Professor at the Institute of Service Science, National Tsing Hua University, Taiwan. She is also Director of the Center for Service Innovation & Analytics at NTHU's College of Technology Management. Prior to moving to Taiwan, Prof. Shmueli was on the faculty of University of Maryland's Smith School of Business and later at the Indian School of Business, where she pioneered and developed business analytics courses and programs. Professor Shmueli's research focuses on statistical and data mining methodology with applications in information systems and healthcare. Her work is published in the statistics, management, information systems, marketing, data mining and related literature. She authors multiple books and textbooks, including the popular textbook *Data Mining for Business Analytics*.

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All are Welcome!

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