

## **WEB TRANSPORT MODELING AND CONTROL: HISTORICAL AND CURRENT PERSPECTIVE**

**By**

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Historically, empirical and analytical methods were developed in web handling to address specific engineering problems. Manufacturing improvements resulting from technological advances in machines and processes have been the key drivers for existing product improvements as well as new product developments. The science of roll-to-roll manufacturing has not evolved to the extent required to address the challenges in traditional and emerging applications. Roll-to-roll manufacturing as a key manufacturing science has been overlooked. Emergence of recent research activities in roll-to-roll manufacturing of flexible and printed electronics offers hope that this trend will change.

This talk will provide an overview of historical development of basic ideas of web transport modeling and control with an emphasis on longitudinal modeling and control. Current research will be discussed with a focus on issues that are central to both traditional as well as emerging applications. The talk will highlight the close interplay between the accuracy of transport/process models and the ability with which one can develop intelligent control systems to control transport and process variables. The talk will end with a discussion of some future directions in advanced roll-to-roll manufacturing.