Distinguished Lecturer Series

Prof. Alon Orlitsky
University of California, San Diego

Deciphering the Good-Turing Enigma:
Estimating Probabilities of Unlikely and Unseen Events

Abstract: In their legendary WW-II effort to decipher the enigma code, I.J. Good and Alan Turing derived an equally-enigmatic estimator for the probabilities of unlikely and even unseen events. It estimates the probability of events by considering not just the number of times they appeared, but also how many times other, possibly unrelated, events were observed. Though not well understood for over half a century, the Good-Turing estimator has proved invaluable in practice and is used in a variety of applications, including natural-language processing, bioinformatics and ecology. We will review the estimator, its early heuristic explanations, recent rigorous proofs of its efficacy, the best possible performance of any estimator, and some unexpected implications. Based on joint work with Ananda Theertha Suresh and other students.

Prof. Alon Orlitsky is a faculty member at UCSD's ECE and CSE departments and is affiliated with Calit2 and the Information Theory and Applications and Wireless Communications Centers. His research concerns information theory, compression, commuinication, probability estimation, prediction, machine learning, and speech recognition.

12:00-13:00 on Tuesday, January 5, 2016 in the
Harry and Carol Saal Auditorium, Alon Building for Hi-Tech (37/202).
12:00-13:00 יום ג', 5 בינואר 2016 – בחדר 202 בבניין אלון (37/202)