

Industrial and Systems Engineering Seminar

Heavy Tailed Statistics for Modeling Data Network Sessions

Wednesday, November 6

3:15 PM – Refreshments before the Seminar

3:30 PM – Graduate Seminar



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Professor

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A session is a higher order entity resulting from amalgamating packets, connections, or groups of connections according to specified but not unique rules. For example, using various rules, the flow of packets past a sensor can be amalgamated into higher level entities using a threshold rule based on gaps between packet arrivals. Statistical analysis of these sessions based on packets is complex: session duration (D) and size (S) are jointly heavy tailed but average transmission rate ($R=S/D$) is sometimes not heavy tailed and arrival times of sessions is not Poisson. By segmenting sessions using a peak rate covariate, we find conditional on a peak rate decile, within this decile segment session initiations can be modeled as Poisson. We can outline a scheme for simulating networks sessions consistent with characteristics of that data. (Joint with Luis Lopez-Oliveros.)

Bio: Sid Resnick joined Cornell faculty in 1987. Resnick is a fellow of the Institute of Mathematical Statistics, and while at Colorado State was an Oliver Pennock Distinguished Service Award winner. He was on the Bernoulli Society Committee for Conferences in Stochastic Processes and was on the program committee of the First World Congress of the Bernoulli Society in Tashkent, USSR. He is a founding associate editor of *Annals of Applied Probability*, and a current associate editor of *Journal of Applied Probability*, *Stochastic Models*, *Extremes* and *The Mathematical Scientist*. He is a former associate editor of *Stochastic Processes and Their Applications*. He served a three-year term on the Council of the Institute of Mathematical Statistics and served on their ad hoc committee on electronic publishing. He is currently an editor for Birkhauser, Boston serving on the boards of the *Progress in Probability* and *Progress in Probability and Its Applications* series and also serves on the editorial board of the Springer series *Operations Research and Financial Engineering*.