DANIEL J. EPSTEIN DEPARTMENT OF
INDUSTRIAL AND SYSTEMS ENGINEERING

EPSTEIN INSTITUTE SEMINAR • ISE 651 SEMINAR

Skill Based Service Systems

Dr. Gideon Weiss

Professor, Statistics
University of Haifa, Israel

ABSTRACT

We consider systems with several types of customers and several types of servers, where compatibility of servers to customers is given by a bipartite graph. This is motivated by call centers with skill based routing, and by assigning kidney transplants to patients. A common approach is provided by infinite first come first served matching of two infinite multi-type random sequences. We obtain explicit results for this model, and show how to extend them to a host of queueing models, including loss systems, stable queues, overloaded queues, and overloaded queues with abandonments.

TUESDAY, FEBRUARY 7, 2012
ANDRUS GERONTOLOGY BLDG (GER) ROOM 309
3:30 - 4:50 PM

Professor Gideon Weiss

Department of Statistics
The University of Haifa, Israel

EDUCATION
- Imperial College of Science and Technology, University of London, England, Ph.D., 1974.
- Technion, Haifa, Israel, Master in Operations Research.
- Hebrew University, Jerusalem, Israel, B.A. in Mathematics and Statistics.

  Thesis: "Filtered Poisson Processes as Models for Daily Streamflow Data"
  Supervised by Professor Sir David R. Cox and Professor Terrence O'Donnell

RESEARCH INTERESTS

Optimization of Stochastic Systems: Control of processing networks, optimal solutions of fluid approximations, tracking of fluid solutions, bandit problems and Gittins index, restless ban- dits, stochastic scheduling problems, PERT, Markov decision processes.
Mathematical Programming Simplex algorithm for continuous linear programming.

Manufacturing Systems: Fluid Heuristics for control of manufacturing systems. Fluid and dif- fusion approximations of manufacturing systems. Stochastic aggregate modeling of manufac- turing systems. Re-entrant lines.

Applied Probability and Stochastic Processes: Queues with virtual infinite buffers, queue- ing theory, fluid models, time reversibility, stochastic inequalities, reliability, stochastic mod- els for ion channels in cell membranes, processes derived from Poisson points in the plane, interacting particle systems.

Time Series Analysis: Applications to water resources problems, directionality in time series, shot noise processes as models for neuroelectrical data.