Rusell C.H. Chang:

Keywords:

Name of the conference

Simulation Theory, Parameter Estimation, Marine Simulation, Computer generation of random variables, parameter estimation, optimal control. Marine Simulation. Queue theory. Non-Standard estimation problems. Input modelling. Resampling Methods.

Summary:

MA Degree Mathematical Statistics Cambridge U. 1965

Bath University PhD 1973

Senior Lecturer in Wales

First trained as a mathematician, specialized in statistics. Simulation came by chance since he wanted to stay in UK for the PhD in there was an opportunity from a industrial sponsor, which he took. He did not study this areas as an undergraduate and was a change of direction.

U.of Barth professor introduces him to simulation theory. Prof. Barry …

Older brother was a C.Eng, and recommended him to specialize in statistics, while he was an undergraduate.

-The Art of Simulation, Tucker (first real textbook on simulation).

Areas that he made contributions:

Computer Generation of Random Variables (concentrated early on on his career). Industrial chemical processes? -> Generate variates to the gamma dist. 1-week or two came acceptance-rejection method.

Variance Reduction Techniques: (early 70-into the 80s) Interst on geomnetric aspects of statistics problems. Calculating a CI to represent a bandwidth of values.

CLT

Parameter Estimation Nonregular Statistical Models: Interest of geometrical interpretation on statistical problems.

**Antithetic Variates ,** Control Variates :

Variance Reduction.

(40min) Resampling Methods-> accepting used in healthcare, but in other areas in engineering is not used. Repeating the experiment in a. mathematical way.

Application areas:

45.Computer generated imagery techniques and marine simulations. (Early 80’s, where personal computer were becoming powerfull and took an early delivery of an experimental deskptop at work, which had a high resolution. U.ofWales had a Maritime studies department. There was a collegue in a ship handling simulator which were very large equipment difficult to set up. Not as advance as a flight simulator. He wrote a program that was a simple representation of what you see form the \_\_\_\_\_ of the ship. The program was developed into a commercial program.

He began working in simulation on making use of mainframes like ibm 360 and at the university of London he use cdc7600 computer (32k of memory available). Think the direction of simulation is going to super-computing, parallel computing.

**What is the future of the field?**

Massive-parallel type systems. Super-Computing.

Work has been used by the Ford Motor company (7 figures saving from a math model the was implemented).

His problems are mainly academic driven, however they have been applied.

He think his best work is: Non-Standard Estimation: propose the maximum product spacing estimation.

Advice:

Good choice. Read broadly to see what aspects of simulations do you loke.

Administrative responsibilities:

Was influenced by the work of modelling methodology of Stephen C. **Mathewson**

Fun facts: