Department of Electronics and Communication Engineering
National Institute of Technology Trichy

Celebrating Claude Elwood Shannon's 100th Birthday

Visit of Esteemed **Prof. Dr. Andrew Thangaraj**, Professor,
Department of Electrical Engineering, IIT Madras, Chennai

Claude Shannon's clever electromechanical mouse, which he called Theseus, was one of the earliest attempts to "teach" a machine to "learn" and one of the first experiments in artificial intelligence.

Title of the Talk: An Invitation to Research in Information Theory

Venue: EEE Auditorium

Date:10/10/2016

Time: 9.30 onwards

Abstract of the Talk

An Invitation to Research in Information Theory

Information theory originated in Shannon's famous 1948 paper with a focus on studying fundamental limits in digital communication systems. Today, the fundamental limits set out in Shannon's paper are well-understood and can be very nearly achieved in practical communication systems involving a single transmitter and a single receiver. Recent research in information theory of communication systems considers various problems and scenarios that are still open and might arise in future communication networks. In the first part of this talk, I will briefly present some recent research results in the areas of capacity of quantized ISI channels and capacity of noisy constrained channels done at the electrical engineering department of the Indian Institute of Technology (IIT) Madras. In the second part, I will elaborate in detail on the topic of online algorithms for base station allocation. Starting with the classic secretary problem, I will introduce the idea of online algorithms, which process inputs one at a time. I will show how the base station allocation problem in a wireless cellular network can be solved using an online algorithm as effectively as that of an offline algorithm that has access to all inputs ahead of time. I will discuss extensions to several combinatorial resource allocation problems in wireless cellular networks. I will conclude by talking about research opportunities and directions in the areas of information and coding theory in India, and particularly at the IIT Madras.

About the speaker (http://www.ee.iitm.ac.in/~andrew/)

Andrew Thangaraj received his B.Tech. in Electrical Engineering from the Indian Institute of Technology (IIT), Madras, India in 1998 and a PhD in Electrical Engineering from the Georgia Institute of Technology, Atlanta, USA in 2003. He was a post-doctoral researcher at the GTL-CNRS Telecom lab at Georgia Tech Lorraine, Metz, France from August 2003 to May 2004. From June 2004, he has been with the Department of Electrical Engineering, IIT Madras, where he is currently a professor. Since Jan 2012, he has been serving as Editor for the IEEE Transactions on Communications.

http://silver.nitt.edu/~esgopi/Guestlecture/Prof.Dr.Andrew_visit.mp4