

Title: On improving and extending LT codes

Abstract: LT codes are the first practical rateless erasure codes and extremely useful in the scenarios in which the channel parameters of broadcasting receivers are quite different or backchannels are unavailable. Improving and extending LT codes may assist to advance human communication technologies. In this talk, the concept and operations of LT codes will be firstly introduced, followed by the improving and extending studies on LT codes conducted in the Natural Computing Laboratory at National Chiao Tung University in recent years. In these studies, methodologies and mechanisms in the realm of evolutionary computation have been utilized to tune parameters of LT codes and integrated into LT codes to construct a new channel code, called Connection Choice Codes. An extension to LT codes, called Multiple Configurations LT Codes, has also been developed.