

ĐẠI HỌC BÁCH KHOA HÀ NỘI VIỆN CÔNG NGHỆ THÔNG TIN VÀ TRUYỀN THÔNG



Applied Statistics and Experimental Design

Data Analysis and Experimental Design

TITLE AND CONTENT SLIDE

Data Analysis Procedure



- Data analysis procedure
 - Data collecting
 - Receive data
 - Convert interested process using equipments
 - Using sensors to receive temporary electrical values
 - Data preparation:
 - Convert data into more suitable forms for processing.
 - Identify and delete abnormal or distorted data
 - A/D conversion
 - Sampling and quantization



- Estimation of important properties of data
 - Testing for stationary
 - Testing for periodicity of data: delta form of spectral density of the process.
 - Testing for normality of the process: using χ^2 criteria.
- Data analysis
 - Analysis sample functions in separation
 - Analysis ensemble of sample functions with known statistical properties of each realization



- Analysis of sample function in separation
 - Estimation of mean and mean square
 - Estimation of covariance function
 - Estimation of spectral density
 - Estimation of probability density
 - Analysis of nonstationary and transitional processes
 - Analysis of periodic and almost periodic processes



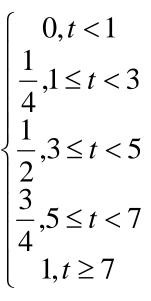
- Analysis of sample functions in ensemble
 - Analysis of sample function in separation
 - Test for correlation between sample functions
 - Test for equivalence of uncorrelated sample functions
 - Union of equivalent uncorrelated sample functions.
 - Estimation of mutual covariance function
 - Estimation of coherent function
 - Estimation of frequency properties
 - Test for equivalence of spectrums



Midterm test

- Problem 1: A pair of dice is tossed twice. What is the probability of getting totals of 7 and 11.
- Problem 2: A pack consists of 36 cards. Three cards are drawn.
 What is the probability that one card is ace?
- Problem 3: In a assembly plant, three machine A, B, C make 30%, 45% and 25% respectively of products. It is known that 2%, 3% and 2% of the product made by each machine respectively are defective. Suppose that a finished product is randomly selected. What is the probability that it is defective? If a product were chosen randomly and found to be defective, what is the probability that it was made by machine C?
- Problem4: Given distribution function F(t). Find:
 - P{T=5}; P{ T> 3}; P{1.4<T<6}
- Problem 5: A continuous random variable X that can assume values between x=1 and x=3 has a density function given by f(x)=1/2.
 - Show that, the area under the curve is equal to 1.
 - Find P{2<X<2.5}
 - Find P{X≤1.6}

Find F(x); and evaluate $P\{2 < X < 2.5\}$





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Thank you for your attentions!

