CSE400 – Fundamentals of Probability in Computing

Lecture 7: Expectation, CDFs, PDFs and Problem Solving

Instructor:

- Dhaval Patel, PhD
- Associate Professor
- Major Advisor – Computer Science and Engineering (CSE)
- Machine Intelligence, Computing and xG Networks (MICxN) Research Lab
- SEAS – Ahmedabad University, Ahmedabad, Gujarat, India

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Part I: Lecture Outline

The lecture is organized into the following topics:

- The Cumulative Density Function (CDF)
  - Definition
  - Properties
  - Example
- The Probability Density Function (PDF)
  - Definition
  - Properties
  - Example
- Expectation of Random Variables (RVs)
  - Definition and Example
  - Expectation of a Function of RV
  - Linear Operation with Expectation
- nth Moments and Central Moments of Random Variables
  - Variance
  - Skewness
  - Kurtosis

Part II: The Cumulative Density Function (CDF)

Topic Heading

- The Cumulative Density Function (CDF)

Subsections

- Definition
- Properties
- Example

Part III: The Probability Density Function (PDF)

Topic Heading

- The Probability Density Function (PDF)

Subsections

- Definition
- Properties
- Example

Part IV: Expectation of Random Variables (RVs)

Topic Heading

- Expectation of RVs

Subsections

- Definition and Example
- Expectation of a Function of RV
- Linear Operation with Expectation

Part V: nth Moments and Central Moments of Random Variables

Topic Heading

- nth Moments and Central Moments of RVs

Components

- Variance
- Skewness
- Kurtosis

Part VI: Structural Notes on the Source Material

- The lecture slides consist primarily of topic headings and outlines.
- No explicit mathematical derivations, proofs, or formulas are presented in the available textual content.
- Repetition of the outline across multiple slides reinforces the thematic structure of the lecture.

End of Lecture Scribe