

LaTeX Scribe Generation for Lecture Notes

Hi, you should behave as a professional scribe generator. Create a scribe as a LaTeX code of this file "L10_S1.tex" that you should not change the content in the file. Keep the content accurate. Follow the lecture's structure (1).pdf" as the reference for the intended scribe's format. Make it possible so that it can be directly converted to PDF.

◆ Certainly! Here is the LaTeX code for your lecture scribe, based on the content of the "L10_S1" file and formatted according to the provided PDF.

Code snippet

```
\documentclass[11pt]{article}
\usepackage[utf8]{inputenc}
\usepackage[margin=1in]{geometry}
\usepackage{amsfonts, amsmath, amssymb}
\usepackage{graphicx}
\usepackage{hyperref}
\usepackage{enumitem}

\begin{document}

% --- Header Section ---
\begin{center}
\textbf{\Large School of Engineering and Applied Science (SEAS), Ahmedabad University} \\
\textbf{\Large CSE 400: Fundamentals of Probability in Computing} \\
\textbf{\Large Lecture 10: Randomized Min-Cut Algorithm} \\
\rule{\linewidth}{0.5pt}
\end{center}

\noindent \textbf{Lecturer:} Dhaval Patel, PhD \hfill \textbf{Date:} February 5, 2026 \\
\textbf{Topic:} Randomized Min-Cut Algorithm \hfill \textbf{Scribe:} Lecture Summary

\vspace{1em}

% --- Section 1: Outline ---
\section{Outline}
This lecture covers the fundamental concepts of the Min-Cut problem, comparing deterministic and random algorithms.

\begin{itemize}[noitemsep]
\item The Min-Cut Problem: Definition and Applications.
\item Max-Flow Min-Cut Theorem.
\item Deterministic Min-Cut (Stoer-Wagner Algorithm).
\item Randomized Min-Cut (Karger's Algorithm).
\item Performance Comparison and Success Probabilities.
\end{itemize}

\section{The Min-Cut Problem}

\subsection{Why use Min-Cut?}
Min-cut algorithms are utilized in various domains to solve problems related to network connectivity, routing, and design.

\begin{itemize}
\item \textbf{Network Design:} Improves communication efficiency and optimizes network flow by finding the minimum cut.
\item \textbf{Communication Networks:} Helps understand network vulnerability to failures and aids in redundancy analysis.
\item \textbf{VLSI Design:} Useful for partitioning circuits into smaller components to reduce interconnection costs.
\end{itemize}

\subsection{What is a Min-Cut?}
\begin{itemize}
\item \textbf{Cut-set:} A set of edges whose removal breaks a graph into two or more connected components.
\end{itemize}
```


