01

Slide 1:

Introduction

* Topic: Writing a research abstract
* Moves: Introduction, Objective, Methodology, Results, Conclusion
* Importance: Summarizing key points of a research article

Slide 2:

Moves 1 & 2

* Move 1: Introduction
  + Briefly introduce the topic and its importance
* Move 2: Objective/Research Question
  + State the main objective or research question

Slide 3:

Moves 3 & 4

* Move 3: Methodology
  + Describe the methods used in the study
* Move 4: Results
  + Summarize the main findings of the research

Slide 4:

Move 5 & Summary

* Move 5: Conclusion/Implications
  + State the significance and potential impact of the findings
* Summary:
  + Use clear and concise language
  + Avoid jargon
  + Maintain logical flow throughout the abstract

Top of Form

02

Slide 1:

Writing an Introduction for Computer Science Research Articles

* Rhetorical moves:
  + Move 1: Introduce research topic and context
  + Move 2: Identify the research gap
  + Move 3: State significance and relevance
  + Move 4: Present research objective or question
  + Move 5 (optional): Provide an article outline

Slide 2:

Move 1 & Move 2

* Move 1: Introduce research topic and context
  + Briefly present the general area of research
  + Set the stage for your specific focus
* Move 2: Identify the research gap
  + Point out limitations or unaddressed areas in existing research
  + Justify the need for your study

Slide 3:

Move 3 & Move 4

* Move 3: State significance and relevance
  + Explain the importance of addressing the identified gap
  + Describe how your study contributes to the field
* Move 4: Present research objective or question
  + Clearly state the main goal or research question
  + Show what your study aims to address

Slide 4:

Move 5 & Writing Tips

* Move 5 (optional): Provide an article outline
  + Give a brief overview of the paper's organization
  + Help guide the reader through subsequent sections
* Writing Tips:
  + Use clear and concise language
  + Avoid excessive jargon
  + Ensure a logical flow between moves

03

Slide 1

Introduction to the Method Section

* Purpose: Importance and Role
* Overview: Content and Structure

Slide 2

Method Section - Product Creation

* Problem Statement: Clear Objective
* Design and Development: Methodologies and Frameworks
* Implementation Details: Programming Languages, Tools, Technologies
* Features and Functionality: Key Aspects
* Testing and Evaluation: Methods Used

Slide 3

Method Section - Experimental/Evaluative Studies

* Research Question or Hypothesis: Investigative Focus
* Participants or Data Collection: Inclusion Criteria, Data Gathering
* Variables and Measures: Studied Aspects, Data Collection Methods
* Experimental Setup or Software Environment: Hardware, Software, Simulation
* Data Collection Procedure: Experimental Protocols, Surveys, Interviews
* Data Analysis: Statistical or Analytical Methods
* Ethical Considerations: Informed Consent, Data Privacy

Slide 4

Summary or Conclusion

* Recap: Key Points
* Importance: Significance and Value
* Clarity and Reproducibility: Transparency and Validity
* Closing Remarks: Advancement of Knowledge

04

Slide 1:

Introduction to the Results Section

* Purpose: Present the primary results of the research
* Interpretation: No interpretation, only objective findings
* Clarity and Relevance: The information should be clear, concise, and answer the research question(s)
* Presentation Style: Utilize both text and illustrative materials (Tables and Figures)

\*\*Slide 2:

Key Elements of the Results Section (Part 1)

* State Main Findings: Outline the key findings related to your research question(s)
* Provide Detailed Results: Give detailed results with context, specifics, and accurate details
* Visual Aids: Present results visually using graphs, charts, tables, and diagrams

Slide 3:

Key Elements of the Results Section (Part 2)

* Report Negative Results: Describe all results, even if they are not as expected or contradict your hypothesis
* Summarize Findings: Recap the main points in a brief summary at the end of the Results section
* Avoid Interpretation: Keep your opinions, implications, and interpretations out of the Results section

Slide 4:

Conclusion

* Evidence for Conclusions: The Results section provides the evidence for your conclusions
* Clarity and Conciseness: It should be clear, concise, and objective, with well-structured visual aids for clarity
* Importance of All Results: All findings are important, even negative ones, as they maintain scientific integrity
* Result Interpretation: Interpretation and discussion of the results are reserved for the Discussion section

05

Slide 1:

Introduction to the Discussion Section

* Purpose: Interpret results, highlight significance, link to prior research, discuss implications
* Restates research question and main findings
* Explains meaning and importance of results
* Compares with prior studies, discusses limitations, suggests future work

Slide 2:

Summarize and Interpret Findings

* Restate research question and primary findings
  + Example: "We improved sorting algorithm speed by 30% compared to traditional quicksort."
* Discuss significance of results in relation to research question
  + Example: "Our method handles larger data sets efficiently, ideal for big data applications."

Slide 3:

Compare to Prior Work, Discuss Limitations, and Implications

* Compare results with previous studies
  + Example: "Our results align with Doe et al. (2020) but our method differs by using a hybrid approach..."
* Acknowledge study limitations
  + Example: "Our study only tested on synthetic datasets, real-world application needs further testing."
* Discuss practical implications and future research
  + Example: "Future work could evaluate our algorithm's performance on real-world datasets."

Slide 4:

Conclusion of the Discussion Section

* The discussion section is crucial for explaining the significance and implications of your research
* It involves restating the research question, summarizing and interpreting findings, comparing with prior work, discussing limitations, and suggesting future work
* This section links your study to the broader field, and suggests how your research can be used to further knowledge in your area of study

06

Slide 1:

Introduction to the References Section

* Importance of the references section:
  + Acknowledges others' work and ideas.
  + Provides evidence for your arguments.
  + Allows readers to follow your sources for deeper understanding or verification.
* References section formatting:
  + Depends on the citation style mandated by the target journal or conference.
  + Common styles in computer science: IEEE, ACM, APA, etc.
  + Consistency is key: ensure each reference follows the same format.

Slide 2

Referencing in LaTeX

Two main methods: Using .bib file and \bibitem command.

Using .bib file:

* Create a .bib file as a bibliography database.
* Each reference is stored with a unique identifier.
* In the main .tex file, use the `\cite{key}` command for in-text citations.
* Use `\bibliographystyle{stylename}` and `\bibliography{bibfilename}` commands to display references.

Using \bibitem command:

* Directly write each reference in the LaTeX document within `\begin{thebibliography}{99}` and `\end{thebibliography}` commands.
* In-text citations use the `\cite{key}` command.

Slide 3:

Referencing in MS Word

Two main methods: Using a reference management tool and manual input.

Using a reference management tool:

* Word has a built-in tool; other options include Mendeley, Zotero, Endnote.
* Automatically formats references according to a selected style and inserts in-text citations.

Manually:

* References written manually must strictly follow the chosen citation style.
* Example (IEEE format): Author Initials. Author Surname, "Title of article," in Journal Title, vol.#, no.#, pp. page number/s, Month Year.

Slide 4: Conclusion

* The references section is vital for academic integrity, evidence for arguments, and providing a path for readers to explore further.
* Both LaTeX and MS Word have automated and manual methods for creating the references section.
* The choice of method often depends on the author's comfort and the complexity of the document.
* Regardless of the tool used, maintaining consistency and accuracy in referencing is crucial.

07

Slide 1:

Introduction

* Importance of the Related Works section in research.
* Purpose: Provides context, shows awareness of major themes/findings, illustrates how your work fits into larger scientific dialogue.
* Key Steps: Identify themes, search for relevant literature, categorize findings, summarize and analyze, compare and contrast, reference properly.

Slide 2:

Identifying and Categorizing Related Works

* Identify Key Themes: Example – "Machine Learning, Predictive Analysis, Healthcare Applications".
* Search for Relevant Literature: Databases like Google Scholar, IEEE Xplore, ACM Digital Library.
* Categorize Your Findings: Based on relevance to research, methodologies used, theoretical approaches, applications, etc.

Slide 3:

Analyzing and Comparing Related Works

* Summarize and Analyze: Summarize relevant findings, analyze how these findings relate to your research.
* Compare and Contrast: Highlight the similarities and differences between your work and the related works.
* Categories of Related Works: Theoretical Approaches, Methodologies, Applications, Experimental Results, Reviews or Surveys.

Slide 4: Conclusion

* The Related Works section is not just a summary of existing literature.
* It shows how your work builds upon or differs from existing works.
* It establishes the significance and novelty of your research.
* Proper citation and referencing are crucial.

08

Slide 1 –

Introduction

* Importance of describing the significance of a research topic in the introduction
* Engaging readers and establishing relevance
* Purpose of the presentation

Slide 2 –

Practical and theoretical importance

Practical Importance:

* Highlight real-world applications and potential benefits
* Improve existing systems or solve practical problems
* Example: Efficient algorithm for real-time object detection in autonomous vehicles

Theoretical Importance:

* Advance theoretical foundations of the field
* Challenge existing theories or provide new insights
* Example: Investigation of the complexity class of a newly proposed problem

Slide 3 –

Societal and technological Importance

Societal Importance:

* Broad societal impact of the research
* Address societal challenges or improve quality of life
* Example: Secure and privacy-preserving framework for healthcare data

Technological Importance:

* Advance existing technologies or enable new advancements
* Improve efficiency, performance, or scalability
* Example: More efficient routing protocol for wireless sensor networks

Slide 4

Conclusion

* Recap the importance of describing the research topic's significance
* Use of evidence and supporting examples
* Emphasize the relevance and value of the research
* Key takeaways for researchers to effectively convey importance in the introduction

09

Slide 1 –

Introduction:

* Importance of describing novelty in research articles
* Definition of novelty
* Purpose of the presentation

Slide 2 –

Categories of novelty claims:

* Conceptual novelty (e.g., new algorithm, new approach)
* Methodological novelty (e.g., new experimental design, new data analysis technique)
* Empirical novelty (e.g., new findings from a dataset, new case study)
* Theoretical novelty (e.g., new theoretical framework, new hypothesis)

Slide 3 –

Examples of novelty claims in computer science:

* Conceptual novelty: machine learning algorithm that combines deep neural networks with graph theory to improve the accuracy of predicting protein-protein interactions
* Methodological novelty: simulation-based optimization approach that integrates agent-based modeling and evolutionary algorithms to improve the efficiency of supply chain management
* Empirical novelty: novel empirical evidence on the impact of gamification on student engagement in online learning environments
* Theoretical novelty: novel theoretical framework for understanding the relationship between social media use and mental health outcomes among adolescents

Slide 4 –

Conclusion:

* Importance of justifying novelty claims with evidence
* Need to acknowledge existing knowledge in the field
* Key takeaways for researchers writing the introduction of their articles

10

Slide 1: Introduction

- Purpose: Understanding the role of an overview in a research article.

- Importance: Provides a roadmap, facilitating comprehension and emphasizing the novelty of your findings.

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Slide 2:

Steps to Write an Overview (Part 1)

Step 1: Mention the Main Topics

* Briefly outline the main topics to be discussed.
* Keep the order of discussion consistent with the article.

Step 2: Describe the Methodology

* Succinctly describe the approach to address the research problem.

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Slide 3:

Steps to Write an Overview (Part 2)

Step 3: Preview the Results

* Offer a glimpse of the results or findings, avoiding detailed explanation.
* This sparks interest and encourages continued reading.

Step 4: Mention the Structure

* Provide a brief explanation of the paper's structure.
* This assists the reader in navigating the content.

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Slide 4:

Conclusion

* Recap: An effective overview guides the reader, maintains interest, and underlines the importance and novelty of the research.
* Objective: Strive for clarity and conciseness in writing an overview.

11

Slide 1

Referring to Figures

* Importance of correctly referring to figures in academic writing
* Overview of presentation: Introduction to different methods for referring to figures such as graphs, diagrams, and screenshots in a research article

Slide 2

Methods of Reference (Part 1)

Direct

* Definition: Straightforward mention of the figure by its number, usually in parentheses
* Usage: When figures provide supplementary information
* Example: "We utilize a machine learning model for detection of fraudulent transactions (Figure 1)."

Sentence Incorporation

* Definition: Integrating the figure reference directly into your sentence
* Usage: When the figure is central to the discussion
* Example: "Figure 2 illustrates the architecture of the neural network, consisting of multiple layers such as the input layer, hidden layers, and the output layer."

Slide 3: Descriptive Reference & Citation-Style Reference

Methods of Reference (Part 2)

Descriptive

* Definition: Highlighting the content of the figure in your text
* Usage: When the figure contains complex information needing brief explanation in the text.
* Example: "The flowchart presented in Figure 3 outlines the steps of the proposed algorithm, from data preprocessing to the final output."

Citation-Style

* Definition: Treating the figure as you would a citation
* Usage: When you want to refer to a figure without interrupting the flow of the sentence.
* Example: "Our findings are in line with previous research, indicating a rise in the use of quantum computing in recent years (refer to Figure 4)."

Slide 4: Conclusion

Summary & Best Practices

Recap of the four methods: Direct Reference, Sentence Incorporation, Descriptive Reference, Citation-Style Reference

Reminder: All figures should be numbered, have descriptive captions, and be clearly legible.

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Slide 1

Referring to Tables in Research Articles

* Importance of correctly referring to tables in academic writing
* Overview of presentation: Introduction to different methods for referring to tables in a research article

Slide 2:

Direct Reference & Sentence Incorporation

Direct Reference

* Definition: Straightforward mention of the table by its number, usually in parentheses
* Usage: When tables provide supplementary information
* Example: "The performance comparison between different machine learning algorithms is presented (Table 1)."

Sentence Incorporation

* Definition: Integrating the table reference directly into your sentence
* Usage: When the table is central to the discussion
* Example: "Table 2 shows the distribution of data points among different classes in the dataset."

Slide 3:

Descriptive Reference & Citation-Style Reference

Descriptive Reference

* Definition: Highlighting the content of the table in your text
* Usage: When the table contains complex information needing brief explanation in the text
* Example: "As summarized in Table 3, the processing times of the proposed algorithm are significantly lower than those of existing methods."

Citation-Style Reference

* Definition: Treating the table as you would a citation
* Usage: When you want to refer to a table without interrupting the flow of the sentence
* Example: "Our results, showing an increase in computational efficiency across multiple tasks (see Table 4), are consistent with the hypothesis that our new algorithm performs better than existing methods."

Slide 4

Summary & Best Practices

* Recap of the four methods: Direct Reference, Sentence Incorporation, Descriptive Reference, Citation-Style Reference
* Reminder: All tables should be numbered, have descriptive titles, and be clearly legible

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Slide 1

Referring to equations

* Importance of referencing equations in research papers.
* Brief overview of different referencing styles.
* Goal of presentation: Understand different methods to refer to equations in a computer science article.

Slide 2:

In-Line and Parenthetical References

In-Line Reference

* Casual and direct way to refer to equations.
* Used when the equation is directly relevant to the sentence.
* Example: "From equation (1), we can infer that the time complexity of the algorithm is O(n log n)."

Parenthetical Reference

* Formal way of referencing at the end of a sentence or statement.
* Used when the equation supports the sentence but isn't the primary focus.
* Example: "The time complexity of the algorithm is O(n log n) (see equation 1)."

Slide 3:

Direct and Narrative References

Direct Reference

* Directly refers to the equation by its number without using the word "equation".Often used when the document contains many equations.
* Example: "As demonstrated by (1), the time complexity of the algorithm is O(n log n)."

Narrative Reference

* Descriptive way of referring to equations.
* Used when describing the nature or significance of the equation as part of the text.
* Example: "Our conclusion about the time complexity of the algorithm being O(n log n) is drawn from our primary finding, equation (1)."

Slide 4:

Conclusion

* Importance of consistency in referencing style throughout the document.
* Remember to use a clear numbering system for your equations.
* Proper referencing guides readers through your logical and mathematical reasoning effectively.

14

Slide 1

Introduction:

* Topic: Prepositions, Conjunctions, and Transitions in Language
* Importance: Connecting ideas and providing clarity
* Focus: Examples related to computer science

Slide 2

Prepositions:

* Definition: Connect noun phrases, show relationships
* Examples in computer science:
  + The data is stored *in* the database
  + She is working *on* the software
  + The algorithm runs faster *with* optimization

Slide 3

Conjunctions & Transitions:

* Conjunctions:
  + Definition: Connect clauses in a sentence
  + Examples:
    - The code is efficient *and* easy to read
    - The program crashed *because* there was a bug
    - You can use Python *or* JavaScript for this project
* Transitions:
  + Definition: Connect sentences, indicate relationships
  + Examples:
    - The programmer fixed the bug. *However*, some performance issues remained
    - The team implemented a new feature. *As a result*, the software became more versatile

Slide 4

Conclusion:

* Understanding prepositions, conjunctions, and transitions is essential for clear communication
* Proper use improves sentence flow and connects ideas effectively
* Importance in technical fields, like computer science, for conveying complex ideas

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Slide 1:

Introduction

* Topic: Noun Phrases in Computer Science Context
* Purpose: Enhance understanding and communication
* Components: Nouns, prepositions, and additional details

Slide 2:

Reasons to Add Noun Phrases

* Give more information
  + Without: "The developer made a new solution."
  + With: "The developer made a new solution with Python, a helpful language."
* Make sentences clear
  + Without: "The group worked together on the project."
  + With: "The group worked together on the project about machine learning."

Slide 3:

Reasons to Add Noun Phrases (Continued)

* Create variety
  + Without: "The data person found important information."
  + With: "The data person found important information from the big dataset with many data points."
* Improve writing and speech in computer science

Slide 4:

Conclusion

* Noun phrases add value to communication
* Enhance clarity, provide extra details, and create variety
* Apply in computer science context for better understanding

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Slide 1:

Introduction

* Importance of transition words and phrases in academic writing
* Creating coherence and smooth flow
* Guiding readers through the text

Slide 2:

Categories of Transition Words and Phrases

* Addition: also, moreover, furthermore, in addition, besides
* Contrast: however, on the other hand, in contrast, nevertheless, yet, but
* Cause and effect: therefore, as a result, because, since, consequently, thus
* Time: meanwhile, after, before, during, subsequently, then
* Sequence: first, second, third, next, last, finally

Slide 3:

Examples in Computer Science Context

* Example 1: Python is a popular programming language for beginners. However, some programmers prefer using JavaScript for web development.
* Example 2: Python is known for its simplicity and readability. Moreover, it has a wide range of libraries and frameworks. On the other hand, JavaScript is primarily used for client-side scripting in web development.

Slide 4:

Conclusion

* Effective use of transition words and phrases in computer science writing
* Clear, coherent, and well-structured texts
* Enhanced reader understanding and engagement

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Slide 1:

Introduction

* Clauses: groups of words with a subject and a verb
* Conjunctions: join clauses together for complex sentences and relationships

Slide 2:

Coordinating Conjunctions

* Connect independent clauses with equal importance
* Acronym FANBOYS: For, And, Nor, But, Or, Yet, So
* Example: She wanted to go to the store, but it was closed.

Slide 3:

Subordinating Conjunctions

* Connect dependent clauses to independent clauses
* Examples: Because, Since, Although, If, When, While, Before
* Example: We will go for a picnic if the weather is nice.

Slide 4:

Conclusion

* Conjunctions create clear, coherent, and well-structured sentences
* Essential for connecting clauses in the English language

18

Slide 1:

Introduction

* Passive voice in English
* Importance in computer science academic writing

Slide 2:

Passive Voice Usage

* Focus on process, results, and research
* Examples:
  + Process: The software was updated to fix the bug.
  + Results: The test accuracy was improved by 10%.
  + Research: The model was trained using a large dataset.

Slide 3:

Limitations of Passive Voice

* Not suitable for intransitive verbs
* Examples of intransitive verbs: sleep, arrive, laugh

Slide 4:

Conclusion

* Passive voice emphasizes action, not the doer
* Useful for objective and clear writing in computer science
* Use with transitive verbs only

19

Slide 1:

Introduction

* Importance of tenses in computer science writing
* Present Simple, Present Perfect Simple, Past Simple

Slide 2:

Present Simple & Present Perfect Simple

* Present Simple: current truths and concepts
  + Example: "A neural network consists of layers of interconnected nodes."
* Present Perfect Simple: past events with ongoing relevance
  + Example: "Recent research has demonstrated that machine learning tools can tackle difficult problems."

Slide 3:

Past Simple

* Past Simple: completed actions in the past, usually project-related
  + Example: "The team developed the tool and tested its effectiveness using a large dataset."

Slide 4:

Conclusion

* Appropriate use of tenses crucial for clarity
* Present Simple: fundamental concepts
* Present Perfect Simple: ongoing relevance of past research
* Past Simple: project execution and experimentation

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Slide 1:

Introduction

* Present Simple Tense in Computer Science Academic Writing
* Explaining basic concepts, describing current states, and discussing theories

Slide 2:

Main Details (Part 1)

* Explaining general facts
  + Example: Machine learning models learn from data
* Describing current states, properties, features
  + Example: A neural network has interconnected nodes

Slide 3:

Main Details (Part 2)

* Discussing widely accepted theories/principles
  + Example: Information travels using the Internet Protocol
* Importance for understanding the foundation of the subject

Slide 4:

Conclusion

* Present Simple Tense: Essential for clarity in academic writing
* Helps readers grasp general facts, current states, and foundational theories
* Effective tool for communicating computer science ideas and concepts

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Slide 1:

Introduction

* Present Perfect Simple Tense in Computer Science Academic Writing
* Emphasizing ongoing importance of past developments

Slide 2:

Main Details (Part 1)

* Ongoing importance of past developments
  + Example: "Researchers have made significant advancements in artificial intelligence."
* Actions with direct impact on the present
  + Example: "Computer scientists have improved data storage techniques."

Slide 3:

Main Details (Part 2)

* Past events with relevant present impact
  + Example: "Scientists have discovered new methods for optimizing algorithms."
* Useful in Introduction sections
* Helps convey connection between past events and present significance

Slide 4:

Conclusion

* Present Perfect Simple Tense: Essential for demonstrating ongoing relevance
* Connects past actions with present results
* Effective tool for communicating the importance of past developments in computer science

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Slide 1:

Introduction

* Past Simple Tense in Computer Science Academic Writing
* Importance in the Methods Section

Slide 2:

Reasons & Situations (Part 1)

* Describing past actions/procedures
  + Example: Data collection and preprocessing
* Reporting tools or software used
  + Example: Python for machine learning model development

Slide 3:

Reasons & Situations (Part 2)

* Detailing experimental setup
  + Example: Participant groups and assigned tasks
* Explaining data analysis process
  + Example: Statistical methods for evaluating results

Slide 4:

Conclusion

* Past Simple Tense: Key to clear methodology description
* Enhances reader understanding of steps, tools, and analysis
* Crucial for effective computer science academic writing

23

Slide 1:

Introduction

* Hedging in academic writing
* Importance in computer science
* Creating respectful conversations

Slide 2:

Hedging Words

* Examples: might, could, may, possibly, seems, generally
* Used to show openness to other ideas
* Avoiding overly strong or certain statements

Slide 3:

Computer Science Context

* Complex field with multiple solutions
* New information can change understanding
* Encourages thoughtful conversation among researchers

Slide 4:

Conclusion

* Hedging promotes accuracy and care in sharing findings
* Enhances respectful communication in computer science
* Contributes to the overall quality of academic writing

24

Slide 1:

Introduction

* Boosters in academic writing
* Importance in computer science
* Balancing certainty and credibility

Slide 2:

Boosters in Context

* Examples: definitely, clearly, undoubtedly, always
* Used to express confidence and emphasize points
* Show that results are accurate and trusted

Slide 3:

Cautious Use of Boosters

* Use only when evidence strongly supports the idea
* Overusing can make writing seem overly confident
* Aim for balanced and well-supported arguments

Slide 4:

Conclusion

* Boosters help emphasize important points
* Use cautiously and appropriately in computer science writing
* Maintain credibility and trustworthiness by balancing booster use

25

Slide 1:

Introduction

* Approximation in English
* Importance in computer science academic writing
* Making writing clearer and simpler

Slide 2:

Approximation Words

* Examples: about, around, nearly, almost
* Used to indicate numbers or sizes without being exact
* Convey general ideas

Slide 3:

Computer Science Context

* When precise numbers aren't crucial
* Simplifying information for better understanding
* Examples: installation time, system capacity

Slide 4:

Conclusion

* Approximation for accessible writing in computer science
* Balancing details and simplicity
* Use approximation to enhance clarity and readability