

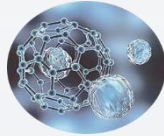
English Practice



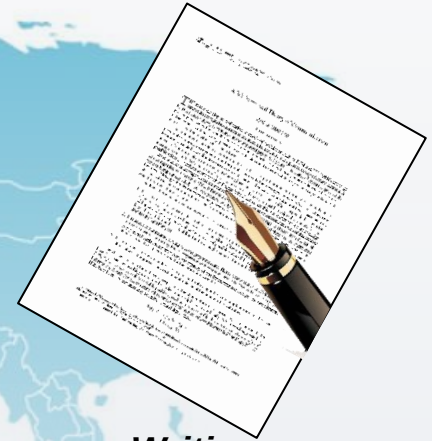
西安交通大学
XI'AN JIAOTONG UNIVERSITY



conference



BIG DATA

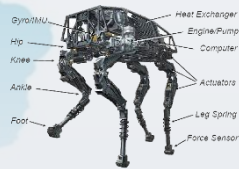


Writing

How to speak English professionally?



Presentation



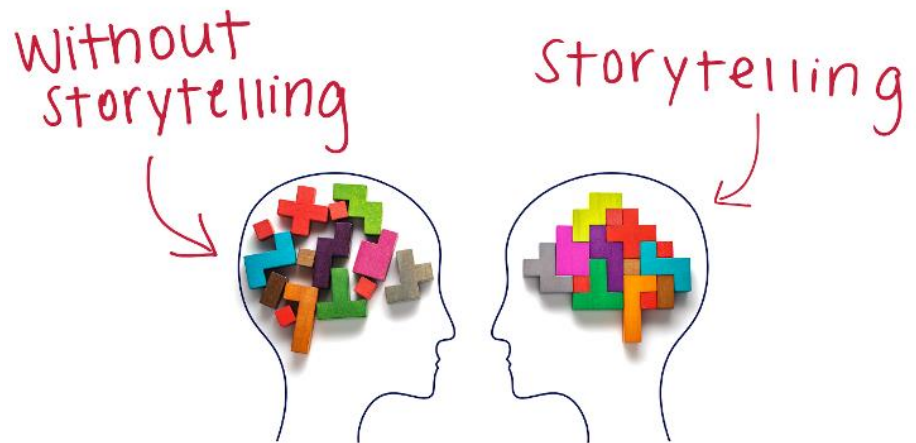
Networking

Chapter 3 Introduction

- ❑ Order your material
 - ❑ Write a concise and attractive title
 - ❑ Construct a neat abstract
 - ❑ Write an effective introduction
 - ❑ Describe your methods so that other researchers could repeat your study
 - ❑ Report your results precisely
 - ❑ Make your discussion relevant and interesting
-

Introduction

- ❑ One of the **most important** parts of the paper
 - The reader has decided to read your paper. Use the introduction to quickly understand the background, methods, results, contributions, and innovations of your paper.
- ❑ **Telling Stories Makes Us Human**



Main points

- ❑ **An introduction should include**
 - **Brief** introduction of the research background
 - **Clear** presentation of the research problem
 - **General** description of methods and results
 - **Explicit** statement of contributions and innovations
- ❑ **An introduction should be brief**
 - **<6 pages** of paper : the introduction is no more than 1 page
 - **8-12 pages** of paper: the introduction no more than 2 pages

Introduction: The contents

❑ What is the problem

- What is the research problem?
- Why is it important?
- What are the shortcomings of the existing studies?

❑ How we solve it?

- The method and idea of this paper is briefly introduced

❑ What is our contribution?

- Give the results and list the main contributions

❑ How the paper is structured (optional)?

- Chapter arrangement of the full text

Background and questions

- ❑ Background and research problem:
 - What is the problem?
 - Why is it important?
 - What has been done?

- ❑ This section is also known as the **motivation**

- ❑ **Motivation** determines the research significance of this paper

Background and questions

- ❑ The introduction is neither a historical review, nor a literature review!
 - **Space is precious**, so don't waste too much space to introduce the development history of this direction. Related literature can be put in the part of Related Work.
 - **The reader** is usually a peer or even an expert in this field, and too much nonsense can be repugnant.
 - If there is no separate section on related work, then a **brief introduction** of representative work in this direction can be made, focusing on the advantages and disadvantages of these works.

Background and questions

□ Keep it short

- The following is the first paragraph of the introduction to a conference paper. There are only **two sentences**.
- The first sentence gives the **problem** and **importance**: wireless networks are indispensable.
- The second sentence gives the **shortage of existing works**: the bottleneck of wireless throughput.

Indirect memory access widely exists modern graph analysis and sparse linear algebra applications. It often causes poor memory locality, resulting in frequent cache misses that cause a critical bottleneck for modern CPUs.

Methods

- ❑ The research methods:
 - Briefly introduce the **core idea** and methods
 - **Examples** are preferred.

Introduce the problem, and your
idea, using

EXAMPLES

and only then present the general
case

Methods

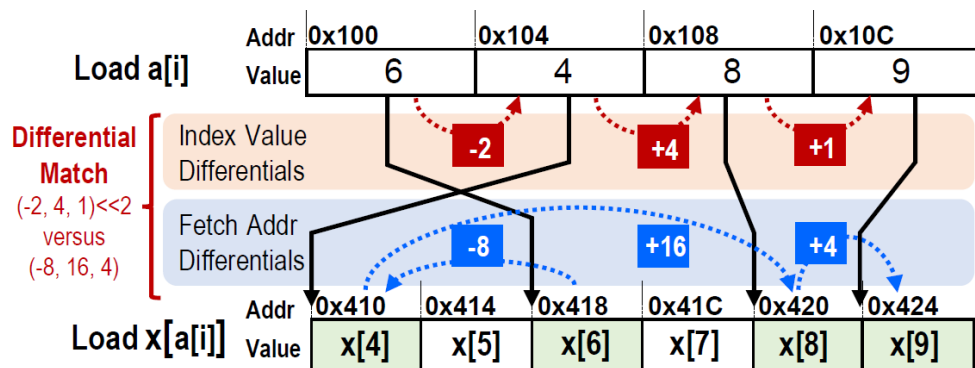
Differential-Matching Prefetcher for Indirect Memory Access

Gelin Fu[†], Tian Xia[†], Zhongpei Luo, Ruiyang Chen, Wenzhe Zhao, Pengju Ren

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access addresses. Fig. 2 depicts the fundamental principle of our method to detect the indirect pattern $x[a[i]]$. Specifically, we observe the load instructions to fetch a and x respectively, tracing the differential sequence of fetched a values as well as the differential sequence of addresses of x . When the sequences are matched with each other, the pattern of $x[a[i]]$ is detected. For ranged indirect accesses of $\{x[a[i]], x[a[i] + 1], x[a[i] + 2] \dots\}$, the differential sequence skips the consecutive fetch addresses of x , so that the relationship between index values of a and fetch addresses of x can still be detected. Moreover, for $y[x[a[i]]]$, we can further match the values of x with the addresses of y to detect multi-level indirect access patterns. By iteratively repeating this matching process, we can fully detect complicated indirect access patterns. Furthermore, a dedicated prefetching unit with an adaptive prefetching degree is proposed to generate efficient prefetch requests for complicated indirect access patterns.



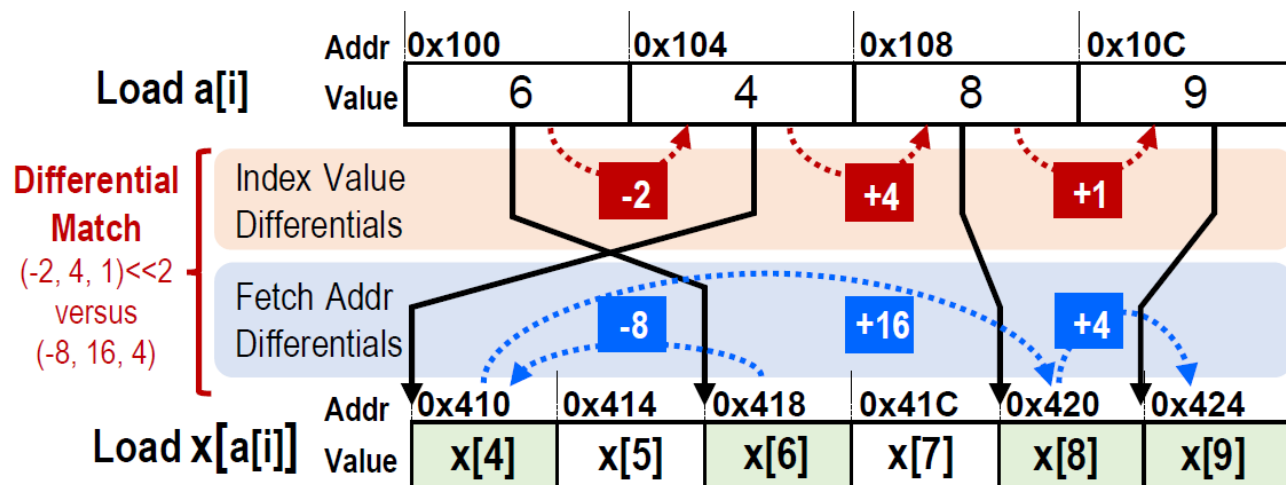
Methods

Differential-Matching Prefetcher for Indirect Memory Access

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access addresses. Fig. 2 depicts the fundamental principle of our method to detect the indirect pattern $x[a[i]]$. Specif-



Contribution and innovation

- ❑ List important **achievements** and **innovations**
 - A **new** question was posed for **the first time**:
 - To the best of our knowledge, we are **the first** to introduce/study the problem of XXX.
 - A **new** algorithm/mechanism is proposed/implemented:
 - We propose/design/implement a **new** algorithm/scheme/protocol to XXX.
 - Theoretical analysis/experimental verification:
 - We do analysis/experiments to demonstrate XXX.
- ❑ **Be clear**. Don't let the reader find or guess!

Organization

- ❑ Explain the organization of the full text, so that readers can understand the structure of the full text clearly
- ❑ Pay attention the **transformation** of words and sentence patterns, to avoid **repeated expressions**.
- ❑ **Active tense** is preferred.
- ❑ This part is **optional**, you can make the choice according to the content of the article

The rest of the paper is organized as follows. **Section 2 motivates Maple using an example.** **Section 3 gives** an overview of Maple architecture. **Sections 4 and 5 present** the details of the optimizer and scheduler, respectively. **We present evaluations in Section 6,** **discuss related work in Section 7,** and **conclude in Section 8.**

Materials and Methods (M&M)

Objectives of M&M section

- ❑ Should be the **largest part** in paper (except for evaluations)
 - ❑ Provide a **clearly report** for the proposed methodology and procedures
 - ❑ Provide **enough details** so your experiments can be repeated
-

Steps for an effective M&M section

Before writing:

- ❑ **Make a scheme** for the entire section
 - ❑ **Order contents** either
 - **Temporally**: show how the methodology **evolves** to address challenges
 - **Spatially** (Logically): show how **each part** addresses different challenges
 - ❑ Use **subsection**/subheading for easier reading, but should be as **simple** as possible.
 - ❑ Explain **how and why** each method was designed. Cite any previously published techniques
-

Steps for an effective M&M sections

When writing:

- ❑ **Make things easy** to understand!
 - ❑ Use a **flowchart** or a **summary** section with detailed steps to help readers follow your method
 - ❑ Write a **summary sentence** for each subsection.
 - ❑ **Equations:**
 - Define all **symbols**
 - Do NOT use the **same symbol** for different quantities
 - If different **terms** are involved, give explanations for each
 - ❑ Clearly define **parameters** in your methods——allow others to repeat your results
 - ❑ Separate methods from **results**
-

Steps for an effective M&M section

After Writing:

- ❑ Complete section and **take a break**
 - ❑ **Review** and **Revise**
 - Did I understand what I wrote?
 - Is that what I meant to convey and could I say it better?
 - Am I able to repeat the experimental procedure?
 - ❑ **Rewrite**
 - ❑ **Share** your section with a peer/colleague for feedback
-

Mistakes to avoid

- ❑ Providing the reader with **unnecessary details**
 - ❑ Let reviewers/readers guess or work **too hard to understand** methods.
 - ❑ Use **unmentioned** concepts, parameters or terms as though they are known to the readers.
 - ❑ **Discussing results**
 - ❑ Providing **background** information
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Thank you!
