



# Writing about the Methodology

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# Before starting the class ....

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## **Advanced Special English for PhD students of Computer** Units: 2

### **TextBooks:**

- Glasman, Hilary. Science research writing: For non-native speakers of English. Imperial College Press: London, UK, 2010.
- Michael Alley. The craft of scientific writing. Springer Science & Business Media, 1996.
- Weissberg, Robert, and Suzanne Buker. Writing up research. Englewood Cliffs, NJ: Prentice Hall, 1990.

### **Evaluations:**

- Final exam (1395/10/30): 12 points
- Lecture in class: 4 points
- Class activities (including assignments): 4 points

### **Presentations**

- Week1: Introduction
- Week2: Introduction

# Before starting the class ....

- **Send me an Email containing a date for a lecture in class.**
  - **About your research (the topic that we have already try to write a text about it)**
  - **Takes 30 minutes**
  - **from 1395/09/13 to 1395/10/29**
- **About the summary forms (فرم خلاصه مطالب آموزشی جلسات) uploaded in the LMS.**

# Methodology

- Alternatives:
  - Materials and Methods,
  - Procedure,
  - Proposed Model
  - ...
- The Methodology should contain sufficient detail for readers to replicate the work done and obtain similar results.

# Components of the Methodology: 1

- Provide a general short introduction and overview of the materials/methods (top-down)
- Restate the purpose of the work to refer back to something in the previous section
- Give the source of materials/equipment used
- Supply essential background information

We propose a new approach for optimizing a n-D simple-bounded continuous function, denoted by  $f(x_1, x_2, \dots, x_n)$ . The aim of this approach is to find the optimum point based on a modified version of the genetic algorithm. Thus, for consistency with the genetic-based methods, the function  $f$  is called cost function in the rest of the paper.

# Components of the Methodology: 2

- provide specific and precise details about Materials and methods (*i.e.* Quantities, Duration, Sequence, Conditions, Locations, Sizes)
- Justify choices made, and Indicate that appropriate care was taken
  - I used ... and I have good reasons for that decision.

# Components of the Methodology: 2

Table 1 explains the steps of the proposed approach. Similar to the well-known genetic algorithm, in Step 1, the proposed approach starts from generating the initial population  $P$ , containing the vertices of the polytope made by the boundaries of  $x_i$ . The size of the initial population equals 2 in the power of number of dimensions. Since, it is not efficient to work with a large number of points, in the high dimensions, a randomly selected subset of vertices is considered as the initial population. The size of the subset has the minimum effect on finding the optimum solution. Then, in Step 2, ...

**Red text: Justify choices**



# Components of the Methodology: 3

- relate materials/methods to other studies

**In Step 6, we perform the uniform crossover operation [2] between the two vertices and the mutated point.**



# Components of the Methodology: 4

- indicate where problems occurred
- a possible difficulty in the methodology

**Although the proposed approach works well with continuous functions, it is not applicable to non-differentiable ones.**

# Grammatical error vs. Invisible error

- An example of an invisible error is where the sentence is grammatically correct but the choice of which verb tense to use is inappropriate or does not represent the intention of the writer
- A proofreader or editor will notice an obvious grammatical error and correct it, but if the sentence is written in grammatically correct English, the error is not visible to proofreaders and editors.
- These hidden errors are worrying because neither the writer nor the editor/proofreader knows they have occurred and yet the sentence does not mean what the writer intended.

# A bit of Grammar to escape the invisible errors

- **Passive and tense pairs**
- **Use of 'the' and 'a'**
- **Adverbs and adverb location**

# Passive or active? Which one is the best?

1. **A new approach is presented in this paper.**
2. **We present a new approach in this paper.**
3. **This paper presents a new approach.**

**Never say: A new approach is presented by the authors (or by us).**

Verb tense:

which one shows what the writer specifically did?

(a) *A flexible section is inserted in the pipe.*      *Present Simple passive*

(b) *A flexible section was inserted in the pipe.*      *Past Simple passive*

# Verb tense: example

Usually is done =>

Two dye jets **are** placed in the laser cavity. A gain jet **is** then excited by an argon ion laser and the pulses **are** spatially filtered in order to obtain a Gaussian beam. Polarization **is** confirmed using a polarizing cube. **The pulses were** split into reference pulses and probe pulses and the reference pulses **were** carefully aligned into the detector to minimize noise levels.

innovation =>

# Use of a determiner

- Singular countable nouns need a determiner (a word like **the, a, my, this, one, some**)
- Examples of countable words:
  - Paper, experience, failure, design, analysis, evidence, ...
- Examples of non-countable words:
  - Research, progress, knowledge, information, intelligence, independence, luck, nature, ...

# Use of 'the' and 'a'

- Use '**the**' when you and your reader both know which thing/person you mean.
  - *I bought a new computer but **the** keyboard was faulty.*



## Use of 'the' and 'a'

- Use '**the**' if there is only one possible referent
  - *Cairo is **the** capital of Egypt.*

# Use of 'the' and 'a'

- Use 'a' if
  - it doesn't matter or
  - you don't know or your reader doesn't know which thing/person you are referring to.
  - Example:
    - *The subject spoke to an interviewer.* (It doesn't matter which interviewer)

# Use of 'the' and 'a'

- Sometimes the choice of **a** or **the** changes the meaning of the sentence completely:
  1. *This effect may hide **a** connection between the two.*
  2. *This effect may hide **the** connection between the two.*

Which sentence does imply that there is definitely a connection between the two?

# 'a' or 'an'

Starts with vowel	Starts with consonant
an experiment	a model
an input	a connection

# 'a' or 'an'

Spelling is not important.

Sound is important

MRI: em-ar-ai

UV: yoo-vi

Starts with vowel	Starts with consonant
an MRI	a UV light

# Adverbs and adverb location

*He gave a lecture about liver cancer at the hospital last January.*

Is the subject of the lecture about “liver cancer at the hospital last January”?

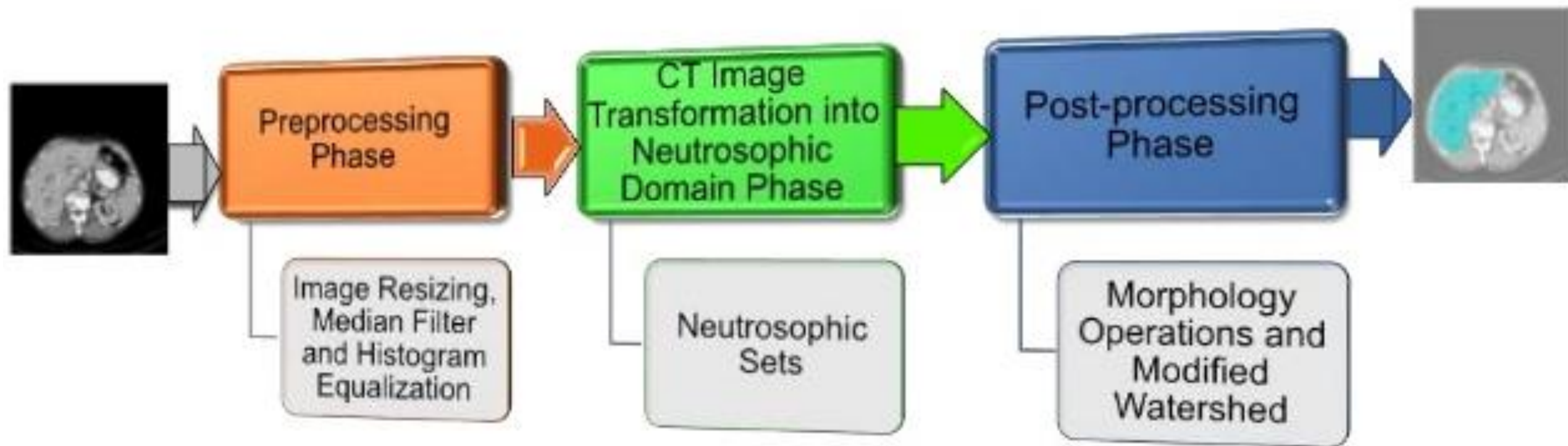
# Adverbs and adverb location

## Revised alternative sentences:

*Last January, he gave a lecture at the hospital; his subject was liver cancer.*

*Last January, he gave a lecture at the hospital about liver cancer.*

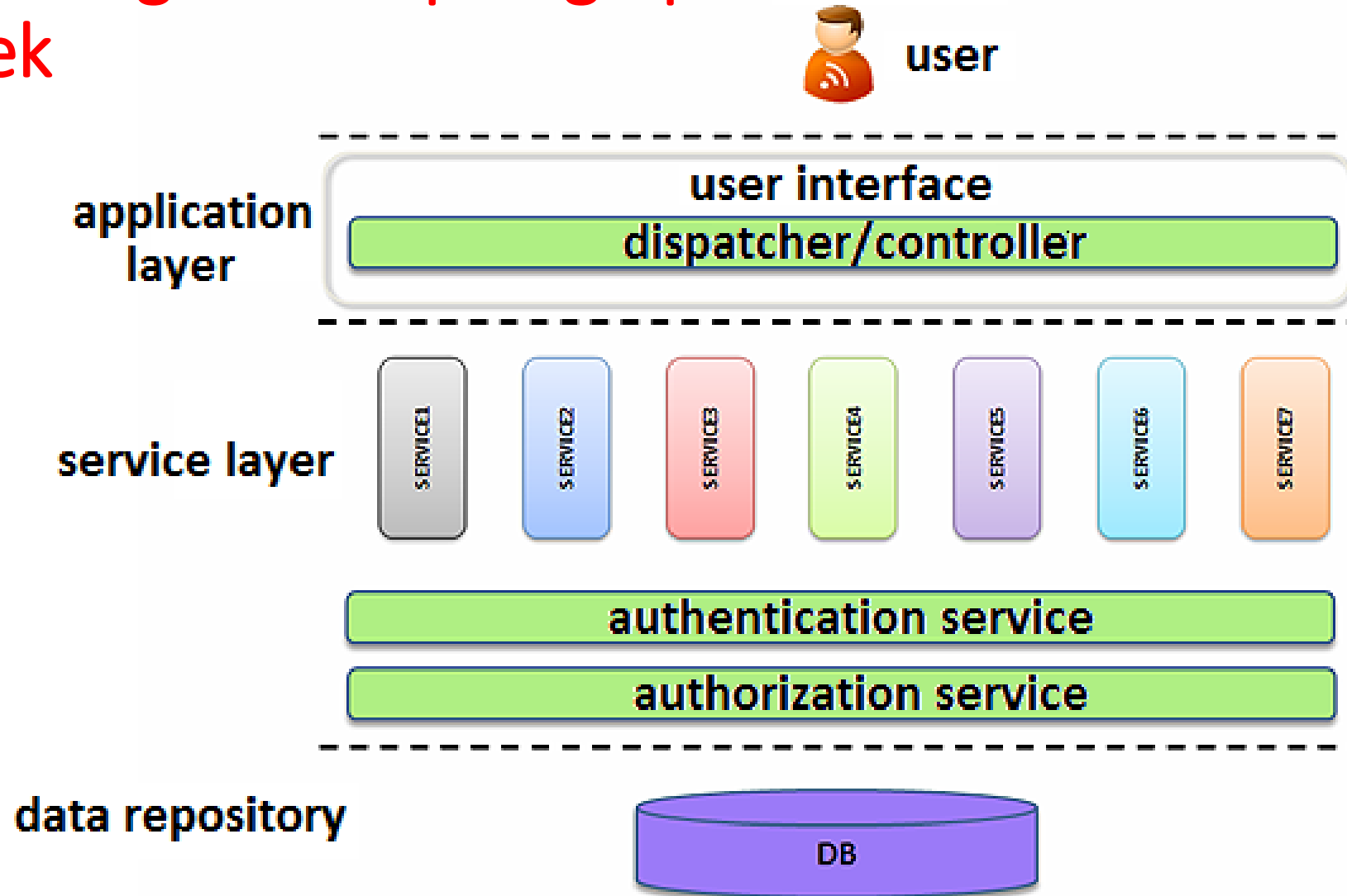
# Exercise: data flow style





# Exercise: Architecture

Explain the figure in a paragraph and email me for the next week



# For the next week also ...

- **Read the second unit of the textbook:**
  - **Glasman, Hilary. [Science research writing: For non-native speakers of English](#). Imperial College Press: London, UK, 2010.**

**If you read the pages, then, in our telegram group, write a sentence about it. Specially, about the interesting fact that you have learned from it. For example:**

**“I’ve already read the second unit of our textbook. I’ve learned popular keywords that is used in an introduction.”**