

# Bachelor's Theses

For junior graduate students  
(Academic Year 2024/2025),

**Spring Semester SS25**

## Guidelines

February 2025

**Dr. Ahmed M. H. Abdelfattah**

Media Engineering and Technology (German University in Cairo)

# Outline

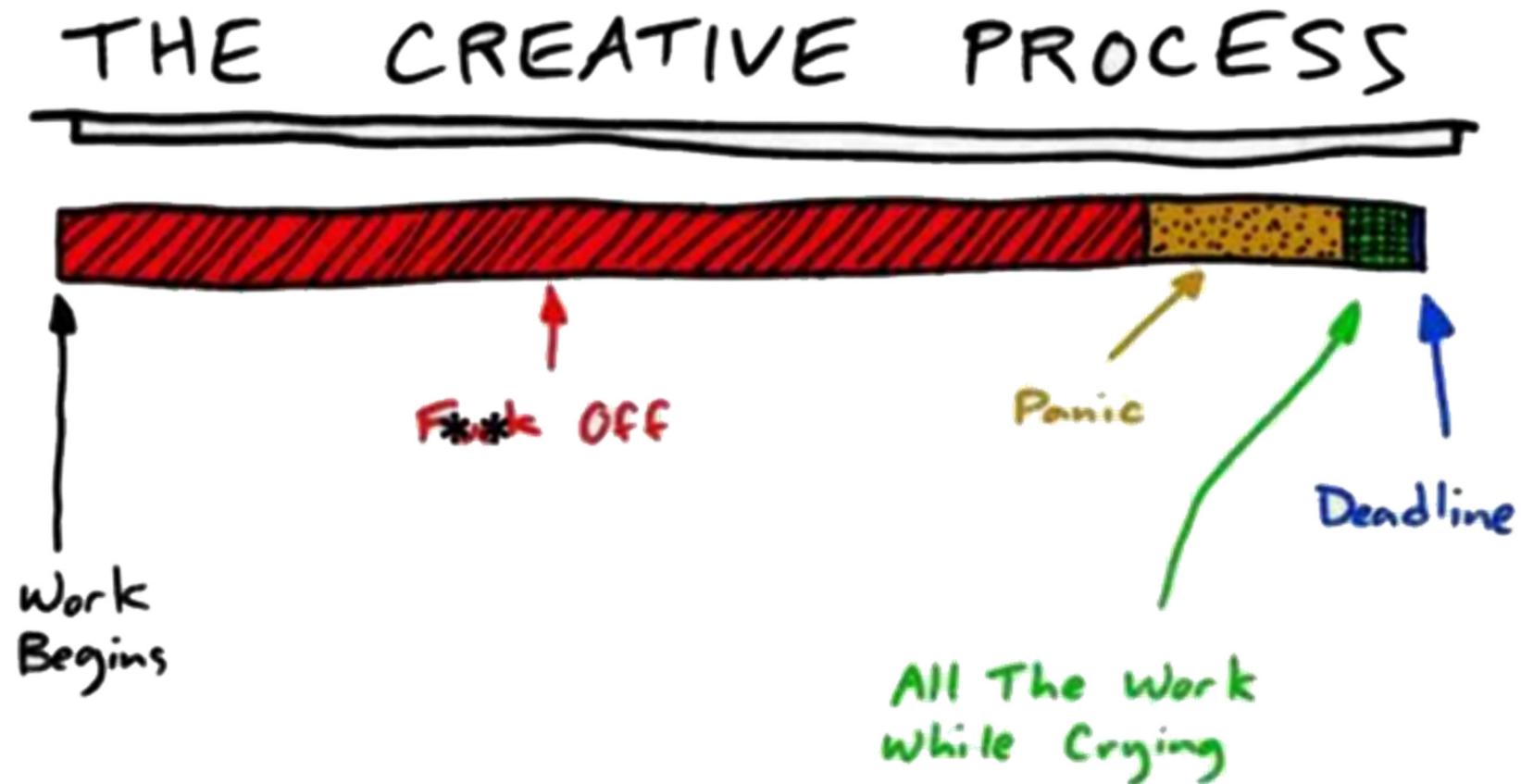
- Terms & Conditions (business rules)
- Course(?) Format
- Assessment & Grading
- Follow-up procedure
- Initial Tasks
- Scientific Papers
- SS25 Topics & Clusters



# About: Terms & Conditions

- The engineering bachelor thesis is **an individual piece of undergraduate research that has a separate grade/scale/transcript.**
- It may involve:
  - the design and implementation of some complex computational system,
  - the construction and evaluation of a useful tool or a novel solution to an interesting problem, or
  - a thorough/insightful review of the literature on a particular topic.
- To successfully complete your thesis work you are expected to be diligent, hardworking, committed, and independent.
- To achieve the highest grade, you must adhere to the rules (عمل الصح). ☺

# Timeline:



*Ever heard of this groundbreaking concept called "time"?  
It's like the most sought-after non-renewable resource, but who needs it anyway, right?  
The donkey learns to swim only when the water comes to its ears.*

# Timeline:

<b>B.Sc. Timeline [Spring2025] – Round I</b>	
B.Sc. Official starting date	Saturday, February 15, 2025
B.Sc. Submission date ( 111 calendar Day )	Thursday, May 29, 2025
B.Sc. Presentation	Saturday, June 14 to Thursday, June 26, 2025
Deadline to submit final B.Sc. version (after comments)	Sunday, August 31, 2025

# Course Format

- **Development and Management (agile)**
  - Work Plan & Gantt Chart, Trello, Google Drive, Overleaf, etc.
- **Weekly Meetings**
  - Meeting Minutes (must be taken by the student and then shared)
- **Weekly Deliverables** (*tangibles/products*):
  - E.g., Short presentation, Video, Report, Implementation, Results
- **Tools**
  - Python, Java, Matlab, Mathematica, Overleaf, etc.
- **Thesis rehearsal / Thesis and Oral Examination**

# Meetings:

- You should have a weekly meeting with your supervisor.
- You should not miss more than 4 meetings without an approved excuse. Otherwise, you are risking failing the bachelor thesis.
- You should come prepared for the meeting. This includes giving a full (oral) report on your progress over the week and a concrete description of challenges or problems encountered.

# Thesis Report:

- You should write your thesis report using L<sup>A</sup>T<sub>E</sub>X.
  - Start learning L<sup>A</sup>T<sub>E</sub>X immediately, if you are not familiar with it.
  - You can use the Overleaf online L<sup>A</sup>T<sub>E</sub>X editor ([www.overleaf.com](http://www.overleaf.com)).
- You should follow the MET bachelor thesis template that you receive from your supervisor. <https://www.overleaf.com/read/fbkbcmqgfmfn>
- Start writing your thesis report immediately. Every week you will be assigned some tasks; you should write about your progress in these tasks weekly. Hence, the thesis report is expected to be updated by the week.

# Thesis Report:

- Overleaf template available [HERE](https://www.overleaf.com/read/fbkbcmqgmfn). <https://www.overleaf.com/read/fbkbcmqgmfn>
- Or, download the complete template of a GUC thesis from this link:
  - Link: <https://drive.google.com/file/d/1ugcBWIsC2Dtv5C1DD4Xpy6HrpX6Nmbnh/view?usp=sharing>
- Your reports will eventually constitute part of the thesis. Thus, it's advisable to start filling-in your own thesis template with your own reports and everything else.
- View GUC theses at: <https://researchjournal.guc.edu.eg/search.aspx>
- *Introducing yourself to the LaTeX typesetting system takes one day*
  - *(do this introduction today! Now! It's easy!),*
  - *then do everything else tomorrow (or today after learning ☺)*

# Thesis Report:

- View GUC Bachelor theses at: <https://researchjournal.guc.edu.eg/search.aspx>

**GUC Bachelor Thesis Journal**

Supervisor:

General Field of Study:

Engineering \*  
 Biological Science  
 Management  
 Business Informatics  
 Applied Arts & Design

Seasons:  Winter 200

Search For:  Sketch

Specialized Field(s):

Engineering:  Information Engineering & Technology  
 Media Engineering & Technology  
 Engineering & Material Science  
 Civil Engineering  
 Architecture Engineering  
 Master in Engineering & Material Science \*

Seasons:  Winter 2003 - Spring 2024

Search For:  Sketch

Supervisor	Date	File
Shafie	Spring 2017	
Islam Shoukry Khalil	Spring 2015	
Infi	Spring 2014	
med Abdelkhalek	Spring 2015	

# Assessment:

<b>Progress and continuous evaluation</b>	<b>40%</b>
<b>Presentation (Supervisor)</b>	<b>15%</b>
<b>Thesis (Supervisor)</b>	<b>15%</b>
<i>Presentation (Reviewer)</i>	<i>15%</i>
<i>Thesis (Reviewer)</i>	<i>15%</i>

---

**70% Supervisor**

*30% External Reviewer*

<b>Grading:</b>	<b>– A+ 94</b>	<b>– B+ 80</b>	<b>– C+ 60</b>
	<b>– A 90</b>	<b>– B 75</b>	<b>– C 55</b>
	<b>– A- 85</b>	<b>– B- 67</b>	<b>– C- 50</b>

# Assessment:

	Max Mark
<b>Report presentation</b>	
English, spelling, punctuation, and style	5
Logical and orderly layout of report	5
<b>Development, achievement, and conclusion</b>	
Analysis of all factors in the problem,	5
<b>Oral presentation</b>	
Presentation technical content and discussion	5
Use of language	5
Presentation Quality	5
Total Mark	30

	Max Mark
<b>Quality of interim reports</b>	10
<b>Presentations and discussion</b>	10
<b>Quality of work</b>	15
<b>Independency</b>	5
<b>Total Mark</b>	40

**High grade:** (85%–89%, A-) To give a grade in this range, the project must satisfy some specific characteristics.

1. The student fulfilled all the project aims.
2. The student clearly appreciate the project's applications.
3. The student conducted the work according to sound professional practices.
4. The project has sound theoretical or analytical basis.
5. Good written report.
6. Good oral presentation.

Grade	Mark Range	Reference
A+	94 – 100	
A	90 – 93	
A-	85 – 89	
B+	80 – 84	
B	75 – 79	
B-	67 – 74	
C+	60 – 66	
C	55 – 59	
C-	50 – 54	
F	49 and below	

# Assessment Guidelines:

- **Attention to detail**
  - Small details impact the overall quality.
  - Do not attack/outsmart **business rules!**
- **Constructive approach**
  - Approach the challenges by promoting a constructive and thoughtful attitude.
  - Is self-learning suitable for everyone?
- **Individual responsibility**
  - ChatGPT is NOT your friend! (but is useful)
  - Take personal responsibility for comprehending the content you encounter.  
... all content!
- **Supervision vs. Teaching**
  - Follow active and engaging approaches to the learning process (this is not passive).
  - Know yourself <https://www.16personalities.com/> (ACHTUNG: You're dealing with an INTJ-T)

# (main) Deliverables:

Deliverables other than the final thesis are usually due on the day of your weekly meeting as hard copies.

## Milestone deliverables:

- **Semester Plan:**
  - A (tentative/progressive) week-by-week plan for weekly achievements
  - During GUC Week W3 (Deadline: 20 February)
- **1<sup>st</sup> interim report:**
  - The thesis report as of the day of submission.
  - By 06-March-2025 @11:59pm CLT.
- **2<sup>nd</sup> interim report:**
  - Again, this is your thesis so-far.
  - By 24-April-2025 @11:59pm CLT.
- **Rehearsal presentations:**
  - Starting Tuesday 20-May-2025 (more will be shared later)
- **Finalized thesis:**
  - 29-May-2025

Next  
week???

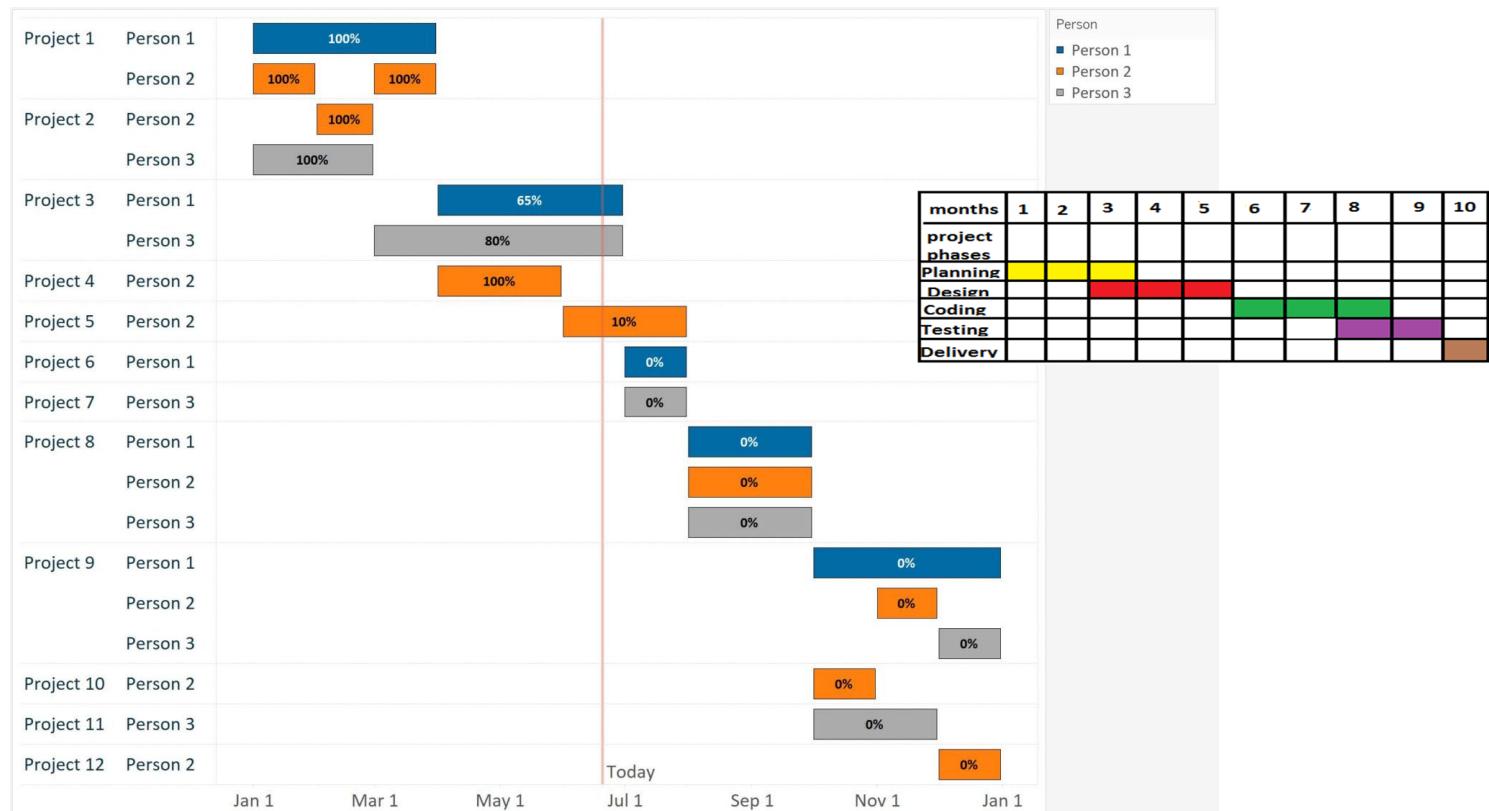
*Softcopies or/and files shared online are NOT deliverables (yet are mandatory!).*

# *(general) Deliverables:*

- Objectives should reflect all deliverables that may result from your project, not only the final application. These should match the problem statement and formulated as **SMART** objectives.
- **Read:** <https://www.atlassian.com/blog/productivity/how-to-write-smart-goals>  
and  
<https://www.health.state.mn.us/communities/practice/resources/phqitoolbox/objectives.html#:~:text=A%20SMART%20objective%20is%20one,anda%20work%20plan>

# (general) Deliverables:

- Tools: Python, Java, Matlab, Mathematica, Overleaf, etc.
- SMART <https://www.atlassian.com/blog/productivity/how-to-write-smart-goals>
- Gantt Chart [https://en.wikipedia.org/wiki/Gantt\\_chart](https://en.wikipedia.org/wiki/Gantt_chart)



# Follow Up

- **SMART** objectives <https://www.atlassian.com/blog/productivity/how-to-write-smart-goals>
- A **SMART** objective is one that is *specific, measurable, achievable, relevant, and time-bound.*



<https://www.health.state.mn.us/communities/practice/resources/phqtoolbox/objectives.html#:~:text=A%20SMART%20objective%20is%20one,designing%20a%20work%20plan>

# Gantt Charts

[https://en.wikipedia.org/wiki/Gantt\\_chart](https://en.wikipedia.org/wiki/Gantt_chart)

- **How to make a simple Gantt chart**
    - <https://theresearchwhisperer.wordpress.com/2011/09/13/gantt-chart/>
  - ... for simplicity, you may use a spread sheet!

# Follow Up (*important*)

- We will use a shared folder (Google Drive).
- You'll create subfolders for (*described in the next slide*)
  - “Composing”
  - “Sources”
  - “Dataset”
  - “Code”
  - “Others”



# Follow Up (*the subfolders*)

- “**Composing**”: folder with whatever you create related to documentation
  - such as docx, pptx, excel, LaTeX, etc.
- “**Sources**”: folder with the references and tools you use.
  - ALWAYS **rename** the pdf-files by adding a serial number between two brackets
    - year of publication – then short key words of the title.
      - Example: [03]-2016-SaliencyPaperAhmed.pdf
- “**Dataset**”: folder with links and descriptions of the working datasets.
  - **Include** samples in the folder, and
  - **Deliver a copy of the dataset in our meeting!!!**
- “**Code**”: folder with all details and created items related to your implementation.
  - If you are you using an online editor (e.g., Jupiter), then always make updated copies for your work.
  - If you have a GitHub repository, you must share (and update) it.
- “**Others**”: anything else, if any!

# Follow Up (*the meetings*)

- Weekly Meetings
  - Meeting Minutes

Date: Wednesday, 15/3/2017

Time: 4:30 PM

Location: C7.311 (Office)

Subject: 2nd Individual Meeting [5th Meeting (#7)]

	Point/Task	Action
1	Progress report	
2	Discuss problems with setting up development environment	Finish setting up the development environment
3	Discuss the backend implementation	Start implementing the backend components
4	Thesis	Start by writing the abstract, the introduction, and the academic survey so far

# Follow Up (*the deliverables*)

- Weekly Meetings
  - **Deliverables**
    - Short Report
      - Use either Word (Only Microsoft) or TeX (Use correct LaTeX editor)
    - Short Presentation
      - 5 Min presentation including the title page
      - Add narrations/voice
    - Code results
      - Results that you like to share
      - **No one will debug your code!**

# Task 1

- **Compose a short description** on your topic (5 lines of text; LaTeX or otherwise this time only).
- **Build a list of expected deliverables** (5-8 points).
- Give a list of references used so far (at least 3).
- Give a list of possible further resources.

In total 1-2 pages / Due to the next meeting (2<sup>nd</sup> week)

## Task 2

### 5 Min Presentation:

1. Overview of the re-phrased topic
2. Project Plan, including
  - a. time plan,
  - b. list of objectives/deliverables and
  - c. Block diagram

(during the 2<sup>nd</sup> week)

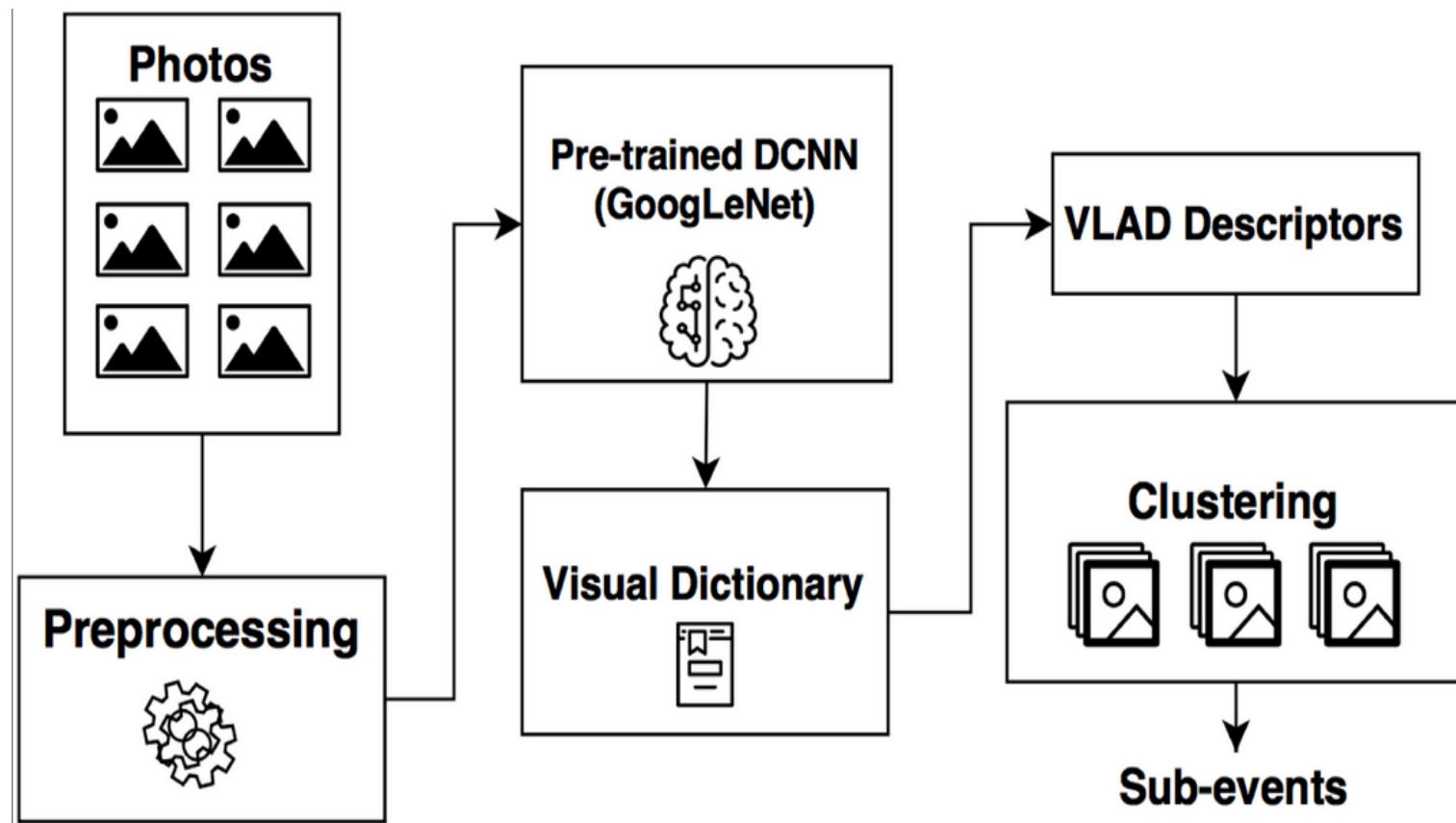
# Start NOW!!!

# Interim Reports: (Report 1)

- Use latex for both of your reports (extract from the thesis).
- First Report deadline: **06-March-2025** 
- First report includes:
  - Motivation and (finalized) well-definition of project problem,
  - Detailed information about your current status
    - What is completed and what's missing (according to your 1<sup>st</sup> plan)
  - **Literature review**: Summary of the many papers related to your topic (use the ones you collected and read).
  - Your work & implementation plan
    - ➔ use **block diagram**.

# Follow Up (*the technicalities*)

- **Block Diagram**



# Follow Up (*the technicalities*)

- A block-diagram is some sort of a flowchart.
- It summarizes your ideas and/or a process.
- They are important for the supervisor and the reviewer (and yourself).
- **Block-diagram** show graphically how the input data go through the different steps in the method to generate the output.
- You may create multiple block diagrams for the details of the project modules.

# Interim Reports: (Report 2)

- Use latex for both of your reports (extract from the thesis).
- Second Report deadline: **Thursday 24-April-2025**
- Second report includes:
  - Completed **Chapters**
  - **Algorithm and implementation**
  - **Results** (even if not completed)
  - Updated block diagrams
- **Keep in mind: this report should closely resemble your final thesis!**



# The FINAL Thesis

- Final Thesis deadline: **29-May-2025**
- Content:
  - Title Page [Title, Student Name, Supervisor Name, Submission Date]
  - [Graphical] Abstract (*← this is where block diagrams will prove most useful!*)
  - Introduction Chapter
  - Literature Review Chapter
  - Report body [Methodology]
  - Results & Discussion
  - Conclusion
  - References
- Don't forget page number (not necessarily the first page).
- Use the GUC template <https://drive.google.com/drive/folders/1EmeDkTP7LGPgetehsfj5Tf7GkPF1xiW?usp=sharing>
- **Apply language and plagiarism check!**

# Rehearsal Presentations

- 15 min
- Introduce the topic, motivate the colleagues to listen to your work.
- Test your skills, learn your drawbacks, get feedback, correct your path.
- Go in details in the method.
- Show implementation details
- Show advantages and disadvantages of the method you used to solve the problem.
- Leave your colleagues with a clear picture of your work, Make them want to read your report.

# Deliverables: Presentation

- Presentations are a way for communication!
  - Talk, instead of read.
  - Stand up! Move around and move hands.
  - Make eye contact with your audience.
  - Don't only look at one side of the room.
  - Don't just read summary cards or whatever !!!!!
  - Watch your: Speed, Tone, and Volume!
  - Use laser pointer... Watch your hand move!
  - Bring your adapter!

# Deliverables: Presentation

- Presentation Slides Style
  - Black text color on white background?
  - Each slide has a title?, slide number?
  - Group many slides under one title?
  - Introduce slides for outline to remind us about the previous and next topics?
  - A picture is worth... what?

# Deliverables: Presentation

- Presentation Slides Content
  - Title Page
  - Outline
  - Introduction: Motivation, Problem Statement, Current state of literature
  - Paper body: Challenges, Methodology, Results
  - Conclusion / Summary
  - References
  - Few text, more figures.
  - Each slide 1 - 2 min (long) on average.

# DEFENSE

**Graduation speech:**

**I would like to thank ...**



**The Internet, Google, Wikipedia,  
Microsoft office, and Copy/Paste.**

# SS25 Schedule

DAY - OFF					
Sat.	08:15 - 09:45	10:00 - 11:30	11:45 - 1:15pm	1:45 - 3:15pm	3:45 - 5:15pm
<b>Sun.</b>	<b>Es &amp; Ss</b>			<b>H12</b> BI2	<b>H12</b> BI1
Mon.	08:15 - 09:45	10:00 - 11:30	11:45 - 1:15pm	1:45 - 3:15pm	3:45 - 5:15pm
<b>Tue.</b>	<b>Gs &amp; Hs</b>			<b>C7.207</b> office hours	<b>C5.106</b> SEMINAR
	08:15 - 09:45	10:00 - 11:30	<b>11:45 - 1:15pm</b>	1:45 - 3:15pm	3:45 - 5:15pm
<b>Wed.</b>	<b>H17</b> MET2	<b>H17</b> MET3	<b>SEM</b> SEMINAR	<b>C7.207</b> office hours	
	08:15 - 09:45	10:00 - 11:30am	11:45 - 1:15pm	1:45 - 3:15pm	3:45 - 5:15pm
<b>Thr.</b>	<b>Ts</b>			<b>Ws</b>	

# SS25 Clusters & Titles

Student Name	Thesis Topic	ID
Ali Hani Farouk Mohamed Elsaheed	Agentic AI for Contextual Adaptive Learning	E1
Mikhail George Samir Youssef Gebrael	AI-Assisted Educational Content Creation with Source Attribution	E2
Omar Essam Mohamed Omar	Building a Generative AI-Powered Multimodal Research Assistant	E3
Abdelrahman Ahmed Mohamed Ibrahim Abdelqader	Ethical Considerations and Mitigation Strategies for Generative AI Misuse	E4

Student Name	Thesis Topic	ID
Mostafa Mohamed Mahmoud Abdelaziz Hathout	A Multimodal Assistant for Simplifying Images (Sketch-based)	S1
Ali Mohamed Ali Tantawy Mohamed Soliman	A Virtual AI Assistant for Automatic Annotation (Sketch-based)	S2
Omar Mohamed Abdelwahab Mahmoud Alian	An Agentic AI Sketch-based Editor	S3

**Sundays 10:30am – 1pm**

# SS25 Clusters & Titles

Student Name	Thesis Topic	ID
Mohamed Ahmed Mohamed Hossameldin Ahmed Mansour	Agentic AI for Graph Analysis with Interactive Visualization	G1
Ahmed Mohamed Ahmed Salaheldeen Mohamed Gad	Intelligent Agents for Graph Algorithm Selection using LLM-based API Access	G2
Mohamed Tamer Mohamed Hassan Mohamed Soltan	Knowledge Graph Construction from Text using Generative APIs	G3
George Medhat Fawzy Habib	Knowledge Graphs for Hallucination Correction	G4

Student Name	Thesis Topic	ID
Shahd Hesham Hassan Mohamed Shehata	A Comprehensive Study on Anti-Unification and Implementation of a Visual Tool	H1
Seif Mohamed Samir Eldesouky Galal	Advancing and Revitalizing an Implementation of HDTP	H2
Raed Joumaa Mohamed Aboanza	Integrating Logical Constraints in Multimodal AI Assistant Outputs	H3

**Mondays 10:30am – 1:15pm**

# SS25 Clusters & Titles

Student Name	Thesis Topic	ID
Omar Bakr Osman Soliman Bakr	AI-Powered Tourist Assistant (Context-Aware Recommendations)	T1
Abdelrahman Amro Helmy Abdelmonaem Zakzouk	AI-Powered Tourist Assistant (Cultural Interpretation)	T2
Ahmed Gamal Ahmed Aly Elkot	AI-Powered Tourist Assistant (Dialect-based Translation)	T3
Abdullah Sheriff Fathy Abdelsattar	AI-Powered Tourist Assistant (Historical Insights)	T4
David George Atef Messiha	AI-Powered Tourist Assistant (Recognition from Media)	T5

**Thursdays 10:30am – 1pm**

Student Name	Thesis Topic	ID
Ahmad Mohammad Abdulhalim Ali Deras	Explaining Logical Reasoning with SNePS and LLMs (Co-supervised by Prof. Haythem Ismail)	W1
Ahmed Ehab Tawfik Mohamed	KRR for Pictures: A Comprehensive Review (Co-supervised by Prof. Haythem Ismail)	W2

**Wednesdays 2pm (MET Meeting Room)**

# Contact:



Dr. Ahmed M. H. Abdelfattah  
Office: C7.207



Faculty of Media Engineering and Technology,  
German University in Cairo (GUC)

Email: [ahmed.abdelfattah@guc.edu.eg](mailto:ahmed.abdelfattah@guc.edu.eg)

Link: <https://www.linkedin.com/in/ahmed-abdelfattah-371b273a/>

# **HOW TO READ A PAPER**

# How to read a paper

- Paper types:
  - Comparison between different methods,
  - Novel methods (and a comparison),
  - Combination of methods,
  - Testing existing methods with new data / application.
  - Position paper?
  - Etc.

# How to read a paper

- **Recognize:**
  - Motivation, Problem, Application, Methods,
  - Data, Implementation tools
  - The paper tells how the author used these methods to propose a solution to this problem within the domain of this Application.
- **Recognize:**
  - Novelty, Contribution, Correctness, Limitations, Clarity.
- **Find out:**
  - Keywords, Terminology and acronyms

# How to read a paper

- Build: **Block-diagram** that show graphically how the input data go through the different steps in the method to generate the output.
- Block-diagram is some sort of a flowchart.

# How to read a paper

- Three-pass method for reading research papers
  - The **first** pass gives you a **general** idea about the paper. The **second** pass lets you grasp the paper's **content**, but not its details. The **third** pass helps you understand the paper in **depth**.
  - **The 1<sup>st</sup> pass:**
    - Carefully read the title, abstract, and introduction
    - Read the section and sub-section headings, but ignore everything else
    - Read the conclusions
    - Glance over the references, mentally ticking off the ones you've already read

How to Read a Paper S. Keshav David R. Cheriton School of Computer Science, University of Waterloo Waterloo, ON, Canada,  
[keshav@uwaterloo.ca](mailto:keshav@uwaterloo.ca), <http://ccr.sigcomm.org/online/files/p83-keshavA.pdf>

# How to read a paper

- Three-pass method for reading research papers
  - **The 2<sup>nd</sup> pass:** read the paper with greater care, but ignore details such as proofs
    - Look carefully at the figures, diagrams, and graphs. Are the axes properly labeled? Are results shown with error bars, so that conclusions are statistically significant?
    - Remember to mark relevant unread references for further reading (this is a good way to learn more about the background of the paper).
  - **The 3<sup>rd</sup> Pass:** attempt to virtually re-implement the paper
    - Great attention to detail
    - you should think about how you yourself would present a particular idea.

How to Read a Paper S. Keshav David R. Cheriton School of Computer Science, University of Waterloo Waterloo, ON, Canada, [keshav@uwaterloo.ca](mailto:keshav@uwaterloo.ca), <http://ccr.sigcomm.org/online/files/p83-keshavA.pdf>