Basics Of Scientific Research 4:

Presentation skills - How to design a professional scientific poster?

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Outline

1. Poster Specifications
2. Poster Structure
3. Effective Poster Design: Tips and Guidelines
   a) Layout
   b) Fonts
   c) Colors
   d) Text boxes and spaces
   e) Graphics
4. Before Printing
5. Assess your poster
6. Poster Presentation

How does an effective poster look like?

PIGS IN SPACE: EFFECT OF ZERO GRAVITY AND AD LIBITUM FEEDING ON WEIGHT GAIN IN CAVIA PORCELLUS

Colin B. Purrington
6673 College Avenue, Swarthmore, PA 19081 USA

ABSTRACT:

INTRODUCTION:

MATERIALS AND METHODS:

RESULTS:

CONCLUSIONS:

ACKNOWLEDGEMENTS:

LITERATURE CITED:

VIDEO ENCRYPTION

submitted for MTH217 project
Submitted to :
Prof. Ahmed G.Radwan
Dr. Samah El-Tantawy

Department of Electronics and Electrical Communications Engineering
Faculty of Engineering - Cairo University

Be Careful! You have been Hacked

ABSTRACT

Everything in our life depends on Math; Encryption is a good application of linear algebra and other mathematical topics. Video encryption is an important branch of data encryption or "multimedia security" field which interests in protection of data and information.

INTROUDUCTION

There is a huge number of videos transfer between users in networks and the problem is how to make these video transfer safely, Video encryption is a very substantial part of multimedia security and is used in a lot of applications which required a high standard of security.

VIDEO ENCRYPTION PROCESS

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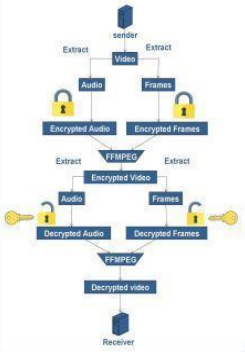

ALGORITHM

There is a lot of encryption algorithms, here is a comparison between the most popular algorithms:

	DES	AES	IDEA
Developed	1977	2000	1990
Key Length	56 bits	128, 192, or 256 bits	128 bits
Structure	Symmetric block cipher	Symmetric block cipher	Substitution Permutation Structure
Block Size	64 bits	128 bits	64 bits
Security	Proven inadequate	Considered secure	

RC4 ALGORITHM

RC4 is a stream cipher algorithm, based on the usage of a random permutation. We use in our project RC4 algorithm Because:

1-It is very fast. 2-More secure.

KSA

$$for\ i = 0\ to\ 255\ do$$
$$"\ S[i] = i;\ "$$
$$T[i] = K[i\ mod(|K|)]$$
$$j = 0$$
$$for\ i = 0\ to\ 255\ do$$
$$j = (j + S[i] + T[i])(mod\ 256)$$
$$swap\ (S[i], S[j])$$

PRGA

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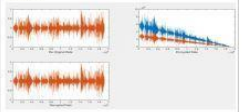
ANALYSIS & RESULTS

We simulated our project on MATLAB by inserting the video, MATLAB code encrypted the video images and the audio then merged them.

Frames:

Audio:



APPLICATIONS

- Video Conferencing.
- Surveillance.
- VDD.
- Pay-Tv News

CONCLUSION & FUTURE WORKS

Video Encryption process improves a lot of applications which depend on transferring videos between different devices and provide them with a high level of security.
Now, researches are working on a new types of data encryption algorithms like Quantum cryptography, Honey encryption, Functional encryption and Fully homomorphic encryption where data will be uploaded into a cloud. No one will be able to access it.

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REFRENCES

1."Symmetric vs. Asymmetric Encryption – What are differences?", SSL2BUY Wiki - Get Solution for SSL Certificate Queries, 2017

2. P. Generation and Stallings, "PRINCIPLES OF PSEUDORANDOM NUMBER GENERATION", BrainKart, 2017.

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Creating a Poster

- Design your own template or modify an existing one using MS PowerPoint
- Other poster production tools:
  - Word Processor (Word, Pages, OpenOffice Writer)
  - Presentation Software (e.g., PowerPoint, Keynote, Impress)
  - Vector Graphics (e.g., Illustrator, Inkscape, OpenOffice Draw)
  - Desktop Publishing (e.g. Photoshop, Publisher, In Design)
- For LaTeX users:
  - You may prepare your oral presentation using beamer
  - You may use a poster template on it as well …

Poster Specifications

- Poster size A0 (i.e., dimensions 33.1 x 46.8 in = 841 x 1189 mm)
- Portrait orientation
- Include the faculty logo, TCCD logo, course code, team logo, team names and contact, course instructor name, title of the project, ...
- Same structure of the report
- More concise
  - Text/graphics balance
  - Can text be replaced by graphics?

Poster Structure

- Title: may be rephrased
- Logos and information
- Abstract
- Problem Definition:
  - What is the problem you are solving?
  - Why is it interesting and important?
  - What makes it challenging to solve?
- Methods of Solution:
  - Which algorithms/techniques/models did you use/develop? Be as specific!
  - How did you address the problem? Provide algorithm flowchart with a description of your algorithm/method
- Data Description
  - What data did you use to test your method?
- Analysis of the Results:
  - How did you assess the performance of your method? Provide appropriate graphical representation
- Conclusions and Future Work:
  - What are your conclusions and recommendations for future work?
- References, not necessarily all
- Preferably, scanning from top left to bottom right

General Tips

- Design poster to be easily seen and easily scanned by eye
- Bear in mind that your poster will be viewed from distances of 1 - 2 meters
- Make it self-explanatory
- Focus on the central question and take-home message (use and repeat key words)
- Aim to limit text, yet, scientific posters generally require more text than other disciplines
- Avoid overcrowding
- Use bullets points not sentences: short, informative
- Use simple and clear language but keep it correct

Again, Effective Poster Design

- ***Overall appearance.*** Use a pleasing arrangement of graphics, text, colors. Your poster should be neat and uncluttered – use white space to help organize sections. Balance the placement of text and figures.
- ***Organization.*** Use headings to help readers find what they're looking for: objective, results, conclusions, etc. A columnar format helps traffic flow in a crowded poster session.
- ***Text size.*** All text should be large enough to read from 1-2 meters, including the text in figures. Title should be larger, to attract attention from far away.
- ***Use color cautiously.*** Dark letters on light background are easiest to read. Stick to a theme of 2-3 colors. Avoid overly bright colors – they attract attention but wear out reader's eyes.
- ***Don't fight reader gravity***, which pulls the eyes from top to bottom (first), and left to right.

Detailed: Layout

- Title should be across the whole width of the poster, as possible
- Sketch a rough layout of your poster
- Organize columns, text boxes and graphics
- 2 columns for a “portrait” oriented poster
- 3 columns for a “landscape” oriented poster
- The order of reading should be logical, better down columns rather than across rows:

  you can indicate (by numbers, letters or arrows) a sequence to be followed in studying your material

Detailed: Fonts

Font Types:

- Use no more than 3 different fonts (usually 2)
- Choose fonts that enlarge well
- In general, use non-serif fonts (e.g., Helvetica) for titles and headings and serif fonts (e.g. Palatino) for body text

Font Sizes:

- Title: 120-200 pt
- Sub-headings: 48 pt
- Main text: 28-36 pt
- Graphs: clearly labeled diagrams 24-26 pt

Font Styles:

- Restrict boldface to title or headings
- Don’t underline
- Avoid italics as much as possible
- Don’t use all UPPERCASE

Detailed: Colors

- Choose colors wisely
- Aim for contrast
- Don’t let use of color or your background detract from the message
- Don’t combine either primary colors or complementary colors
  - primary = red, green, blue (especially red and green)
  - complementary = cyan, magenta, yellow, black (except yellow on black)
- Choose light rather than dark colors
  - Preferably, black text on a light background in **most** of the poster

Colors: Suggestions

- **Title Bar Color:** navy blue; forest green; olive green; burgundy; rust; plum (Your color should be dark enough to use white or cream as your main title text color.)
- **Background Color:** solid cream or beige; pale version of title bar color; any of the previous fading to white; white (Background colors should always be light enough to use black for your main text.)
- **Highlight boxes and Graph backgrounds:** pale version of title bar color; white; light cream or beige

https://people.trentu.ca/~nicholasjones/Poster%20Design.pdf

Text Boxes and Spaces

- Effective posters are spacious and easy to follow
- Adequate clear space will direct attention to key elements
- If you put text in a colored box, make sure there is a text-free border of color around the text to increase readability
- Don’t vary the width of text boxes
- Justify and set line spacing

Graphics

- Aim for 40% graphic content, try to find ways to show visually what was done
- No photo, graphic or chart should be smaller than 5 x 7 inches (13 x 15 cm)
- Graphics should be attractive, clear and specific
- Crop and enlarge photographs to eliminate unnecessary information and focus attention on significant details
- Title or provide captions for your graphics
- Be aware that images from the world wide web, when printed large they often look soft and have large pixels

Good Example

AEEEE

VIDEO ENCRYPTION

submitted for MTH217 project

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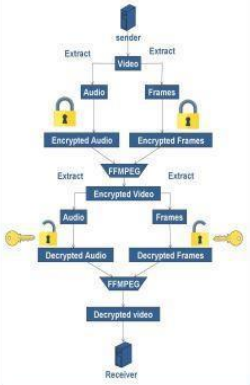

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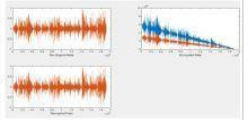

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Bad Example

https://colinpurrington.com/tips/poster-design/bad

Before Printing

- Take your time choosing, designing and drafting
- Print out poster as a pdf file before final printing to check layout and unwanted or missing parts
- Proofread a printed copy of size A3 before the final print
- Eliminate unnecessary detail
- Check spelling and grammar
- Check layout AGAIN before printing

Common Mistakes, To Avoid

- Missing necessary items, e.g., references
- Over-crowded posters
- Alignment, Justification, line spacing
- Spelling mistakes, especially in the repeated keywords
- Low quality and resolution of images and charts
- Similarly, tables and equations when taken as snapshots, preferably rewrite
- …..

Assess your poster: Attracting Your Target Audience

- If you encountered this poster at a poster session would you stop to look at it?
- Is the poster directed to the target audience?
- Is the title of the poster concise and does it stand out?
- Is the posters subject matter quickly discernible?
- Is the poster layout visually pleasing?

Assess your poster: Delivering the Message

- If you stopped to look at this poster, would you read the text on it?
- Is the subject matter presented clearly and concisely?
- Does the information presented flow logically?
- Is the text readable in terms of linguistic difficulty/ scientific language?
- Is the text legible in terms of font choice, size, color and spacing?
- Does the title bar include the presenters' names, and the identifier for the school or institution?

Assess your poster: Creating Visual Impact

- Are the graphics large enough to be seen from a distance of > 2 meters?
- Are the graphics attractive and relevant?
- Have legends or captions been used to guide the viewer?
- Does the poster have sufficient clear space?
- Are sections clearly defined with adequate space around them?
- Have items been aligned?

Poster Presentation

- Editing, practicing, timing
- Evidence should be included in the poster, supportive simulations, upon request
- Handling audience questions
  - Be aware of questions types
  - Expect questions in advance
  - Prepare
  - Honesty
- Combating nervousness

Comprehensive websites

https://projects.ncsu.edu/project/posters/

https://colinpurrington.com/tips/poster-design

Questions?

Thank you!