Presenting your research 1: Academic posters and PowerPoint slides

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Presenting your research

- Academic posters
- PowerPoint slides
- Conference presentations
- Poster presentations
- Presenting to the public
Presenting your research

Academic posters

PowerPoint slides

Conference presentations

Poster presentations

Presenting to the public
Professional posters and slides are **concise**.

- Bullet points
- Icons and symbols
- Data visualisation

- Bullets
  - Bullets and Numbering
  - Picture
  - Import
Professional posters and slides are concise.
Slides are more memorable when they contain images and simple text.
Consumers use their phones to browse but not to buy.

![Graph showing the percentage of consumers who browse and buy on their phones.](graph.png)

- **Browse on phone:**
  - Women: 80%
  - Men: 75%

- **Buy using phone:**
  - Women: 22%
  - Men: 24%

![Statistical data](data.png)

- **n:** 319
- **p:** 189
- **p:** 130
- **p:** 0.87
- **p:** 0.0002
Posters and slides should be easily legible.

- Arial
- Verdana
- Tahoma
- Century Gothic
- Helvetica
- Trebuchet
- Calibri

Avoid justified text

Large title (~85pt) and headings (~36pt)

Empty space

Sans serif font
Choose **colours** that work well together and are visually accessible.

color-blindness.com/oblis-color-blindness-simulator/
Professional posters and slides are consistent.

1) Independence – Stakeholders

Who are our stakeholders and how do we access them?

- Senior Management Team
- Major Projects Board
- Heads of Colleges
- College Managers
- Funders
- Research Support department
- Individual project managers and lead academics
- Project governance
- External organisations and companies
- Project manager
- Other PS departments, e.g. HR
- Regular reviews

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7- Results

During the last thirty years Saudi economy accomplished positive growth rates and determinants of growth reflect the durability of the national economy as an environment stable to attract the investments.

2

There are many organisations for environmental management, which based on ecology standards to manage the use of both natural and economic goods and services for formation environmentally sound development.

8-Conclusion

Saudi government has been starting to lay the foundations of a knowledge economy by focusing on education and invest this knowledge in services and production activities. Therefore, ninth development plan adopted this trend towards a knowledge-based economy. Also, government of Saudi Arabia allocated amount from annual budget for education and training.
Posters and slides should be...

- Concise
- Consistent
- Legible
- Accessible
Posters
What makes a good academic poster?

Muffins are an integral part of any academic conference.
Effective posters have logical organisation and flow
Computation in Bacterial Metabolism

Claudio Angione
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The Computer Laboratory
Celebrating 75 years

Optimal molecular machines

We program molecular machines using Genetic Design through Multi-Objective optimisation (GDOM). A genetic code encoded in the "memory" of the organism, is able to simultaneously maximize the yield of two or more metabolites of interest. The genetic code, i.e. the "computation instructions" given to the machine, is represented using the Patterno-optimal string of bits $y_0^1$.

Conclusion

Since the simulated TM can be universal, the proposed mapping between metabolism and TM allows to perform any kind of computation, through a set of species and chemical reactions characterizing the metabolism.

3. How does Opportunistic positioning work?

Outdoors, opportunistic positioning can typically operate in a similar manner to GNSS given modern digital signals with certain properties. Opportunistic radio signals were not designed for this purpose and this must be considered to exploit these signals fully.

3.4. SLAM on a Smartphone

We have developed an Android app that provides GPS-like positioning performance in any indoor environment.

4. References


An application of machine learning to RCF decision procedures

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Abstract

Machine Learning has been applied to the problem-dependent selection of the most efficient decision procedure in the theorem prover MetiTarski. The machine-learned selection process did better than any fixed decision procedure (Z3, Mathematica and QEPCAD).

Methodology

For each decision procedure, MetiTarski was run on all problems. Then for each problem, the best decision procedure is the one for which MetiTarski solved the problem in least time.

Three main tasks:

- Identify features of the MetiTarski problems that might be relevant to the correct choice of the RCF decision procedure (which special functions, number of variables, etc.,)
- Select the best kernel function and parameter values for SVM-Light based on $F_1$-score maximization
- Combine the models for the decision procedures and compare the margin values produced by these decision procedure classifiers. The classifier with the most positive (or least negative) margin was selected.

Results

The experiment was done on 825 MetiTarski problems in the TPTP format. The data was randomly split into a learning set (418 problems), a validation set (213 problems) and a test set (194 problems). A time limit of 60 CPU seconds was set for each proof attempt. The total number of problems proved out of 194 test problems was used to measure the efficacy of the machine learned selection process.

Using machine learning to select the best decision procedure yields better results than any individual fixed decision procedure.

Future work

- Extend to the heuristic selection within decision procedures
- Extend the range of features used and apply feature selection
- Provide feedback for development of RCF decision procedures
DOME: Delaying and Overcoming Microprocessor Errors

Negar Miralaei | Jyotish Soman | Timothy Jones | Alan Mycroft | Computer Laboratory, University of Cambridge

Project Overview
The project explores the mechanisms required, both in hardware and software, to delay the occurrence of errors and, once the error has occurred, to continue working while tolerating those errors. The project started in September of 2012 and will finish in April of 2016. This project is a collaboration between the University of Manchester and the University of Cambridge.

Background
Power inefficiency of current transistors has lead to an increased focus on power management, making traditional error handling schemes such as redundant hardware increasingly infeasible. Additionally transistors are taking less time to wear out, thus becoming more prone to errors. The trend of reducing transistor sizes and increasing their number on a single chip, makes reliability challenges more critical than ever. Hence alternate designs of hardware and software are needed.

We are taking a novel approach to these challenges by leveraging managed runtime environments (MRE). MREs can be made aware of the wear out and faulty behaviour of the processor, assisting runtime monitoring and altering of applications to increase chip lifetime.

Managing Reliability
Reliability timeline: Delay Faults Tolerate and delay Faults Occurrence of Fault Reliability strategies are pre-fault and post-fault.

Timeline of Project
Characterizing Applications
- Analyse application behavior
- Impact on processor ageing
- Susceptibility to hard faults

Preventing Processor Wear out
- Wear out aware MRE scheme
- Dynamic management of sensitive components
- Dynamic voltage and frequency scaling using MRE

Reacting to Architectural Faults
- Develop strategy to handle errors based on data from characterizing applications
- A generic strategy specialised for each component of processor

Toolset Development
- Add ageing and error models into simulation environment and MRE internal representation
- Add model of faulty hardware into MRE for estimating performance impact

Forming a robust and high performance MRE
- Develop MRE that assures minimum level of performance under various error scenarios
- Understand nature of coexistence of wear out preventive and error tolerant mechanisms

Hardware Design Directions
NBTI Aware Circuit
Power Gating
Error Indicators for Feedback

Dynamic Voltage and Frequency Scaling
Wear out and Fault Aware Design
Ageing Sensors and Canary Circuits

MRE Architecture Overview
- Software Error Model
- Software Ageing Model
- Hardware Model
- Multicore Job Scheduling

Managed Runtime Environment
- Hardware error based updater
- Error handling strategy
- Managing current state of ageing sensitivity
- Empirical updater based on real time feedback
- Performance estimator
- Wear out and Fault Aware Scheduling

Generalised Aims of the Project
- Our aim is to create a general wear out and fault-aware framework that is suitable for most processor architectures.
- The generality extends also to the applications ran on the system. The project though also focuses on finding general trends in behavior of the system across various applications which can assist in creating a practical design.
Slides
Key points are more memorable if slides follow “Assertion-Evidence” format.

![Bar chart showing average test scores for different types of content.](chart.png)
Animations can be useful to help the audience visualise a process
Presenting your research 2:
Presentation skills

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Presenting to the public
Prepare as much as possible!

- Audience
- Practice
- Notes
- Venue
- Back-up plans

.ppsx
Open body language, eye contact, and enthusiasm will help engage your audience.
Preparation and experience will help you to manage presentation nerves.
Presenting an academic poster
Techniques to manage questions.

DONE WITH MY PRESENTATION

NOW I HAVE TO ANSWER QUESTIONS
Make your presentation more accessible by using a microphone and facing the audience.
Presenting your research to the public will help develop your skills and confidence.
What does a good presentation for a general audience look like?

- Audience
- Gestures
- Eye contact
- Body language
- Pace
- Clarity
- Enthusiasm
- Emotion
- Key points