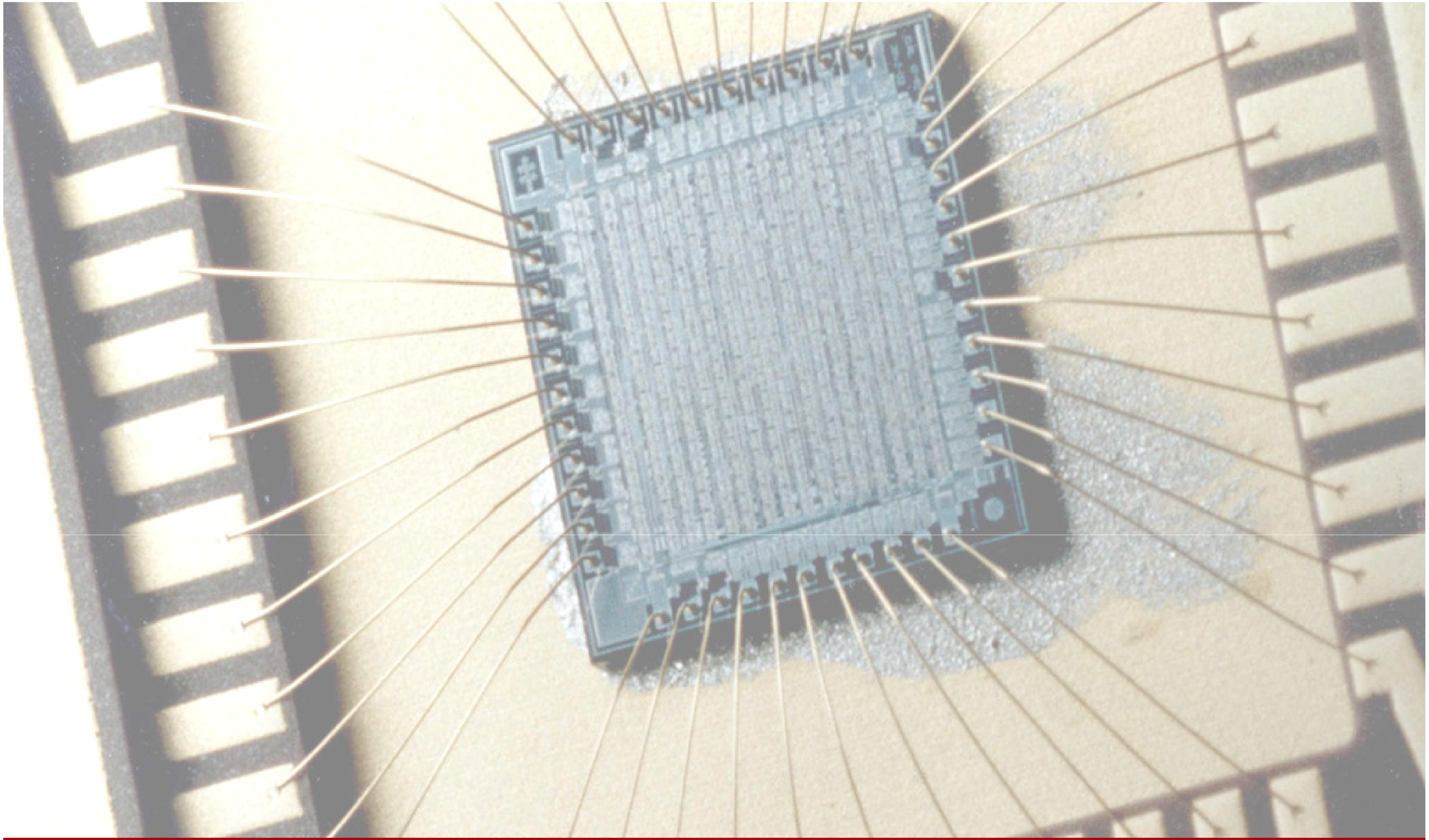

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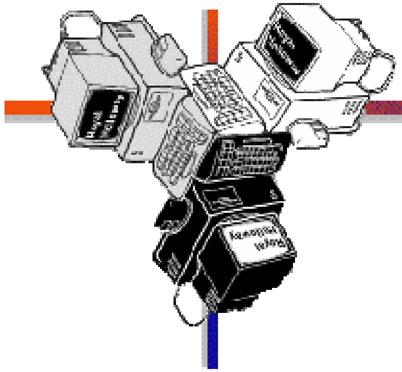
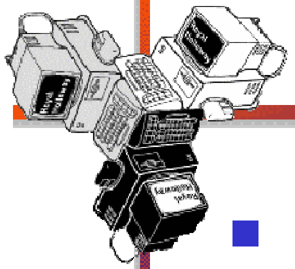


Third year projects



The main event

- The third year project is the centrepiece of your degree
- With a 0:1:2 weighting, a full unit project counts for one sixth of your entire degree marks: that’s almost 17%
- Employers want to know about projects
- Committed students can achieve personal bests in projects
- Disorganised students may collapse

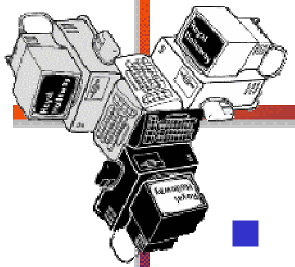
The committee

- **Victor Solovyev (Chair)**
- **Jackie Daykin**
- **Adrian Johnstone**

What’s in a project?

- Background
- Theory
- Application
- Critical analysis

Don’t make the mistake of thinking this is just another programming exercise!

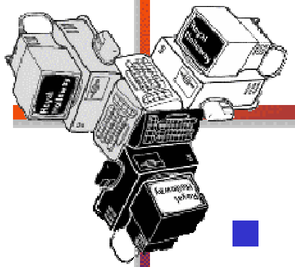


How much can be achieved?

- A full unit project is 300 hours of your work
- That translates to perhaps seven or eight weeks work in an industrial environment
- This time includes research, learning, implementation, experimentation *and* writing up

You *can* achieve a lot, but you must have easily achievable (and assessable) sub-goals

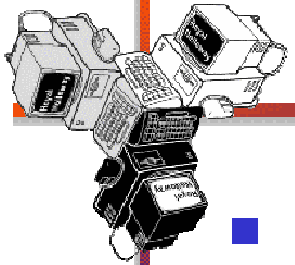
Types of projects



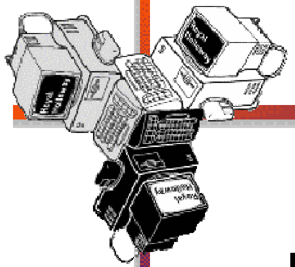
- Review a range of techniques and perform comparisons using a level playing field
- Develop a specific solution to one problem
- Investigate a new research-led idea

- May be industry-based with data or problems coming from industry

Contact time and monitoring



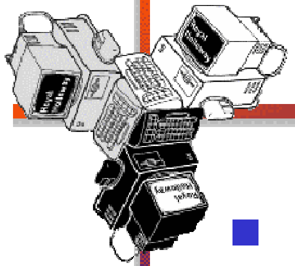
- You will have one timetabled 20 minute meeting with your supervisor *per* week
- General questions about assessment and the conduct of the project are the responsibility of the projects committee
- You must agree milestones
- You will give a project presentation in the penultimate week of term: progression depends on this



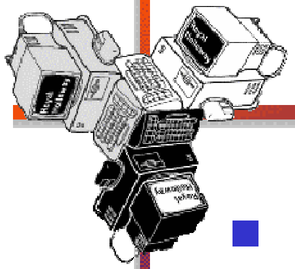
Example milestones

- Nov week 1 detailed specification written
- Dec week 1 review of current theory and state of the art completed
- Dec week 2 first term review and presentation
- Dec week 3 high level design
- Jan week 3 first prototype program
- Jan week4 specification of testing procedures
- Mar week 2 outline of report
- Mar week 4 final draft of report

Project deliverables

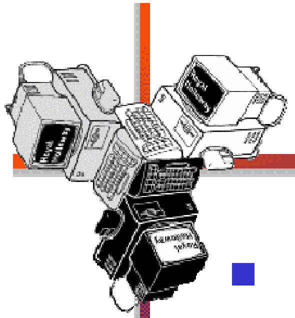


- There will be a report: most projects also deliver an artefact (software or hardware)
- Reports usually include:
  - an adequate user manual for the artefact
  - a survey of theory and practice in the field with
    - a bibliography
    - critical analysis, not just enumeration
  - a description of the workings of your artefact
  - testing procedures and outcomes
  - a critical review (what I would have done then…)



The cost of plagiarism

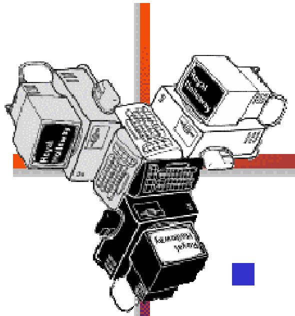
- In 1998 three finalists who had completed their degree programme were found guilty of taking material from the internet and presenting it as their own in their third year project report.
- All three students were terminated, that is they were sent down with no degree and no possibility of retrieving any credit for the three years that they spent with us.



Cheating

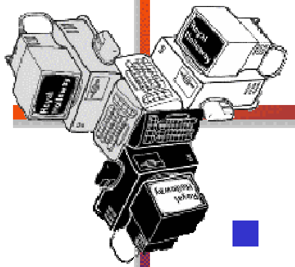
- The only reason you are here is because of the quality of the London degree

- It is an offence under College regulations to submit work which is not your own, or work which contains unattributed ideas from other people.
- This offence is called plagiarism, or in plain speak cheating.
- We can discuss the finer points of plagiarism at length, but in your heart of hearts you know if your work is original or if you have taken short cuts.



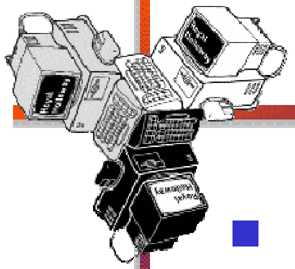
Avoiding plagiarism

- Keep a development diary so you know where ideas come from: original; books; internet; other people
- Fully attribute sources in the bibliography and in footnotes
- Ask your superviser's advice
- Keep your superviser completely up to date with the ongoing development: we get very suspicious when nothing seems to be happening then suddenly a complete program appears



RSA cryptosystems

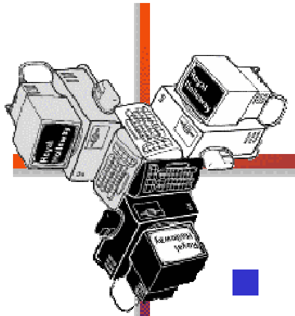
- Learn background in Number Theory
- Write up an example of an RSA message exchange
- Create program to generate keys
- Create program to encrypt and decrypt
- Combine building blocks to form an email system



A compiler for C--

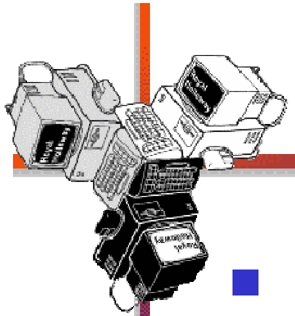
- Learn RDP toolset
- Specify a manageable subset of ANSI-C
- Develop parser
- Add action routines for interpretation
- Extend to tree-based intermediate form and code generation for MIPS

- Extend to hard constructs: dynamic memory, function pointers…



Digital audio

- Learn background on sampling and Fourier analysis
- Write a waveform synthesis program
- Find publicly available libraries to read .wav files
- Develop filters to perform offline ‘tone control’ of .wav files
- Investigate echo, pre-echo and other effects



Rolling your own

- Projects can be tailored to your interests
- In principle, you can design your own project *ab initio*, but
  - Beware over ambitious goals
  - Make sure your superviser can support your goals
  - Don’t expect bonus marks!
- Students who are excited by their project topics perform well

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