Software development

distributed collaborations

version control

testing

Two kinds of problems

- technical
  - "just" takes time/expertise
  - solve once
- social
  - much harder
  - have to solve again and again

How can I do science better?

science

rigour

reproducibility

Nothing is for free

Time.

(And maybe some $\pounds\pounds\pounds$.)

(But time is the most precious commodity.)

Not always immediate payoff

Believe in karma...

Intolerance of inefficiency.

Collaborative environments

Distributed groups have many of the same problems as groups in one location.

(Just worse.)

Problems

High turnover in groups.

Overlapping projects.

Disparate (sub-)projects.

Knowledge transfer

Standards

Spend time setting up infrastructure.

Entry barrier must be low.

Reinvention of the wheel

Personal utilities.

Sane build processes.

Steal shamelessly

Open source world has the same problem.

Responsibility

individual $\rightarrow$ node $\rightarrow$ project
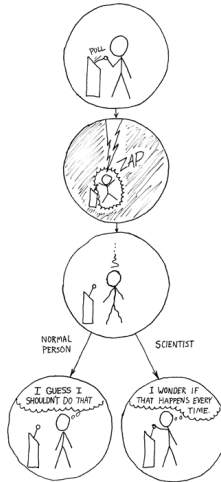
Communication is key

- documentation

- email lists

- RSS feeds

- code review

- VNC/screen

Version control

centralised vs distributed version control.

synchronisation of repositories.

Testing

Part of the development process not the

release process.

testcode:

http://www.cmth.ph.ic.ac.uk/people/j.spencer

Automated testing

Platforms.

Compilers.

Optimisation levels.