ACM International Collegiate Programming Contest

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What is the ACM ICPC?

- Team competition: 3 students from the same university
- Usually 6+ programming problems (examples later)
- 5 hours to solve as many of them as you can!
- Problems can be solved in Java or C/C++
- Why enter?
  - Free food!
  - The challenge
  - Learning while having fun
  - Great on CV if you do well
  - Overseas trip if you win

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Fun in the lab

Competition structure

- Southern African regional
  - Around 50 university teams from SA
  - A few teams from rest of Africa
  - Compete at local sites
- World Finals
  - About 100 teams from round the world
  - On-site in St. Petersburg, Russia
  - Winning team from regional goes

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Eligibility

- Amongst others, the two main eligibility criteria are:
  - began post-secondary studies in 2008 or later, *OR*
  - born in 1989 or later
- Special circumstances if you don't meet the above, but have *not* completed eight semesters of full-time study
- Detailed eligibility decision tree online

Problems

- Problems are typically algorithmic in nature
- Example: Find the largest prime in a list of numbers up to 2^{32}
- Example: Find the first digit of B^N, given $1 \leq B \leq 10$, $1 \leq N \leq 1\,000\,000$
- Example: Find the optimal angle to launch a cannonball to pass through a gap in a wall

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Scoring

- Submissions automatically marked
- Judge's response is one of: Correct, Incorrect, Time-limit exceeded, Runtime error, Compile error
- Just *one* test case wrong gets you an incorrect answer!
- Correct answer gets you a color-coded balloon
- Teams ranked by number of problems solved
- Ties broken using "time penalty"

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Team Strategy

- Interesting twist in the rules: teams work together on a single computer!
- This leaves lots of room for interesting team make-up and team strategy
- If you just want to come have fun, then team up with two friends
- If you want to compete for the win, then this is half the battle
- Winning teams usually have at least one Computer Science and at least one Maths team member
- Not everyone on the team has to program
- Splitting up the problems, not all focusing on the same problem at once, is a skill that requires experience

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Dates

- Wed 19/9: introduction session
- Sun 23/9 13:30–18:30: training
- Sun 30/9 13:30–18:30: training
- Sat 13/10 9:00–14:00: training
- Sat 20/10: contest

A Google Calendar is available

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What Now?

- Bookmark `http://acm.cs.uct.ac.za/`
- Sign up to the `contests` mailing list
- Join the Facebook group (`acmicpc`)
- Register yourself on `http://acm.cs.uct.ac.za/register`
- Look around and try find team members
- Register your team
- Come to training and to algorithm circle

Who to talk to

- Kieren Davies
- Bruce Merry
- Tslil Clingman
- Graham Manuell
- Maciek Stankiewicz

Questions

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