

Team Programming Contests

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Hallmarks of Individual Competition

- You do all the problems.
- You use the computer the whole time.
- Debugging is on the computer.
- You must do all the testing.
- No work can be done in parallel.
- You make ALL decisions.

Analysis of Individual Competition



Strengths

- You have complete control.
- You can use the computer all the time.
- You can always run code to debug.

Weaknesses

- If you get stuck on a problem, there are fewer alternatives.
- No work can be done in parallel.
- No outside thoughts help diversify thought.

Hallmarks of Team Competition

- Different team members can do different problems, leading to possible specialization.
- Team members can communicate to brainstorm solutions.
- Debugging is on paper, usually.
- If one team member is stuck, others may still get questions so the team isn't completely stalled.
- Work **can** be done in parallel.
- Teams must negotiate which problems to do, who gets to get on the computer next, and so forth.

Harnessing the Strength of a Team



Collaboration

- Read Separately
 - Reduces misunderstanding the problem.
 - Different people can contribute to different parts of the solution.
- Debugging
 - Different person makes data.
 - Multiple eyes on the monitor and or printout.

Knowledge Specialization

- Graph
- Dynamic Programming
- Geometry
- Math
- Text/Simulation
- Data Structures
- Brute Force
- Greedy

Various Team Models

- 2010 UCF Hue – one primary coder, one problem solver, one person who did both
- 2012 UCF Implication – team members with three different majors, a geometry specialist, a math specialist, and a third member who did everything else.
- 2014 UCF Olympus – two bangers, one math specialist, one of the bangers learned to specialize in geometry, one really good tester.

Various Team Models – Con't

- 2016 UCF Monarch – one banger who also does geometry, two jack of all trades with very different styles.
- 2017 UCF Badlands – two bangers, one who specializes in geometry, the other a generalist with a specialization in mathematics, one person who helped come up with ideas, coded easier questions and helped coordinate the overall contest effort.
- 2019 UCF Kamino – three students of relatively similar strength, with some specialization, but also lots of overlapping knowledge, all are pretty fast on easy questions.



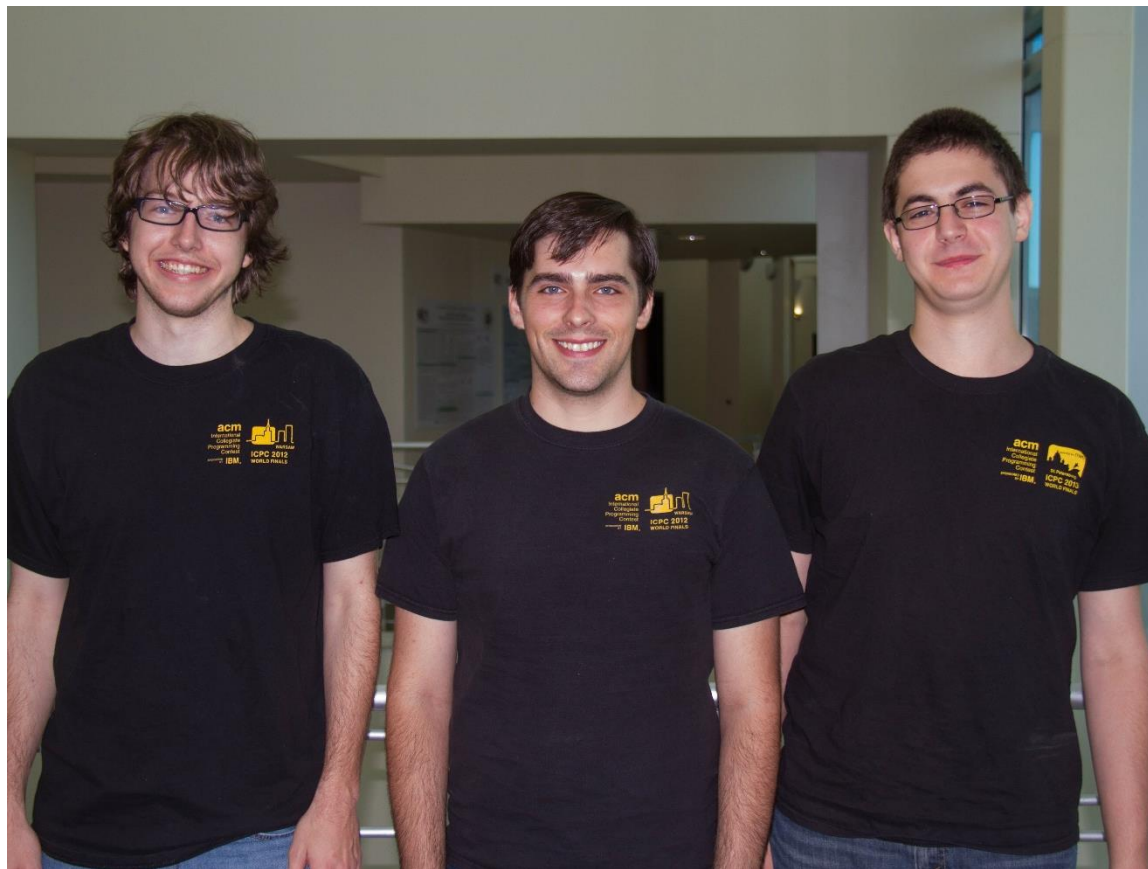
UCF Hue – 2010 Southeast Regional Champs

David told Ryan how to solve problems. Ryan coded the solutions.



UCF Implication 2nd place 2012 Southeast Regionals

First UCF team with three different college majors: Computer Science, Math, Computer Engineering



UCF Olympus

First Place 2013 South East Regionals

Twenty-First Place 2014 ACM ICPC World Finals



UCF Badlands – At Crazy Horse Memorial

First Place 2016 South East Regional

19th Place 2017 ACM ICPC World Finals (Top American Team)