



# University of Asia Pacific (UAP)

Department of Computer Science & Engineering  
74/A, Green Road (Level 7), Farmgate, Dhaka-1205

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## Bill Poucher

ICPC, ICPC Foundation, Baylor CS Professor  
Wood way, Texas, United States

## About

I have the privilege of teaching computer science to Baylor students and the privilege to be a part of the global ICPC community for university students participating in competitive programming as an avenue for pursuing excellence in computational problem solving. We founded the ICPC Foundation to make sure future generations from universities all over the world will have the option to pursue excellence in the art and science of computing with their peers. In 2018, the ICPC served over 50,000 students from 3,200 universities in 115 countries.

## Education

- PhD, Auburn University (1975)
- MS, Auburn University (1972)
- BS, Auburn University (1971)

*Academic Specialization: Theory, Architecture and Software Design*





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## Activity

- Rice faculty have earned a record-breaking eight National Science Foundation CAREER Awards in 2022. Rice Computer Science's Vicky Yao received the...
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## Experience

- **Professor of Computer Science**  
Baylor University  
Aug 1983 - Present 38 years 8 months  
Waco, Texas  
I teach Computer Science to bright students and get to learn a lot in the process. I do like to compose systems that solve problems. Part of my responsibility is the ICPC extracurricular sports programming program that raises algorithmic excellence globally.
- **President**  
ICPC Foundation  
Nov 2016 - Present 5 years 5 months  
Woodway, Texas  
The ICPC Foundation is committed to advance the art and science of competitive programming for the benefit of society. The ICPC is affiliated with the ICPC Foundation. The ICPC Foundation is working to strengthen the global infrastructure and viability of the ICPC community, so that the ICPC can continue as an academically credentialed competitive programming competition open to all, especially opening doors of opportunity for the underserved. The Board has a combined 200 years of service to...
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## **ICPC Executive Director**

### ACM International Collegiate Programming Contest

Jan 1989 - Present 33 years 3 months

Global

The ICPC is a fun and productive global community that challenges gifted students to develop their talents as team problem solvers, to raise their aspirations, and to bring their talents to bear on society's needs, through sports programming. My job is to help my colleagues help folks who love to solve problems while the clock is ticking, and to do that within the ideals common to sports and music. We help folks become composer-class problem solvers who are algorithmic thinkers and who write...

## **Projects**

- **Performance Improvements to Peer-to-Peer File Transfers Using Network Coding**

May 2013

A common peer-to-peer approach to large data distribution is to divide the data into blocks. Peers will gather blocks from other peers in parallel. Problems with this approach are that each peer must know which blocks other peers have available, and in some instances it may not be possible to complete a download if certain blocks are not available in the network. Network coding, a method of distributing data over a peer-to-peer network by employing linear algebra, addresses these issues but...

Show more

Other creators

- **ICPC Digital**

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Revamped the ICPC Digital online presence for the annual ACM-ICPC World Finals, including a dedicated logo. The new site debuted at the Warsaw, Poland competition.



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## Honors & Awards

- **Medal of the University of Warsaw**  
University of Warsaw  
May 2014

"in recognition of your encouragement and efforts in building the ACM International Collegiate Programming Contest and expanding the competition worldwide in service to gifted students, academia, industry, and the global community"

- **UPE Abacus Award**  
UPE Honor Society  
Feb 1998

- **ACM Fellow**  
ACM  
Mar 1994

Selected as one of the first of 133 ACM Fellows.

- **ACM Outstanding Contribution Award**  
ACM  
1990

- **Baylor University Outstanding Professor Award**  
Baylor University

Languages

- **French**  
Limited working proficiency
- **Spanish**  
Elementary proficiency
- **German**  
Elementary proficiency



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## Groups

- **ACM Members**  
ACM Members  
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- **Baylor University Computer Science & Bioinformatics Alumni**  
Baylor University Computer Science & Bioinformatics Alumni  
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- **The Official Association for Computing Machinery (ACM) Group**  
The Official Association for Computing Machinery (ACM) Group

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## Recommendations received

- **Kenneth Morgan**  
“Bill and I took several theorem proving classes together. These classes had no books, but rather embraced the Moore method of teaching, i.e. start with some basic axioms and build the theory structure you need. This teaches you to start with basic principles, work independently, and yet learn from and build on the work of your peers. Most of all, it teaches you to think and never give up. It was a great introduction to the real world. Bill excelled at this, and the lessons we both learned have served us well in our careers as software engineers and teachers.”



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## International Collegiate Programming Contest

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The **International Collegiate Programming Contest**, known as the **ICPC**, is an annual multi-tiered competitive programming competition among the universities of the world. Headquartered at Baylor University, directed by ICPC Executive Director and Baylor Professor Dr. William B. Poucher, the ICPC operates autonomous regional contests covering six continents culminating in a global World Finals every year. In 2018, ICPC participation included 52,709 students from 3,233 universities in 110 countries.<sup>[1]</sup>

The ICPC operates under the auspices of the ICPC Foundation and operates under agreements with host universities and non-profits, all in accordance with the ICPC Policies and Procedures.<sup>[2]</sup> Since 1977 until 2017 ICPC was held under the auspices of ACM and was referred to as ACM-ICPC.<sup>[3]</sup>

### Mission

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The ICPC, the “International Collegiate Programming Contest”, is an extra-curricular, competitive programming sport for students at universities around the world. ICPC competitions provide gifted students opportunities to interact, demonstrate, and improve their teamwork, programming, and problem-solving process. The ICPC is a global platform for academia, industry, and community to shine the spotlight on and raise the aspirations of the next generation of computing professionals as they pursue excellence.<sup>[4]</sup> In its own words, ICPC is:

an algorithmic programming contest for college students. Teams of three, representing their university, work to solve the most real-world problems, fostering collaboration, creativity, innovation, and the ability to perform under pressure. Through training and competition, teams challenge each other to raise the bar on the possible. Quite simply, it is the oldest, largest, and most prestigious programming contest in the world

### History

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The ICPC traces its roots to a competition held at Texas A&M University in 1970 hosted by the Alpha Chapter of the Upsilon Pi Epsilon Computer Science Honor Society (UPE). This initial programming competition was titled First Annual Texas Collegiate Programming Championship and each University was represented by a team of up to five members. The computer used was a 360 model 65 which was one of the first machines with a DAT



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(Dynamic Address Translator aka "paging") system for accessing memory. The start of the competition was delayed for about 90 minutes because two of the four "memory bank" amplifiers were down. Teams that participated included, Texas A&M, Texas Tech, University of Houston, and five or six other Texas University / Colleges. There were three problems that had to be completed and the cumulative time from "start" to "successful completion" determined first-, second-, and third-place winners. The programming language used was Fortran. The programs were written on coding sheets, keypunched on Hollerith cards, and submitted for execution. The University of Houston team won the competition completing all three problems successfully with time. The second- and third-place teams did not successfully complete all three problems. The contest evolved into its present form as a multi-tier competition in 1977, with the first finals held in conjunction with the ACM Computer Science Conference.

From 1977 to 1989, the contest included mainly teams of four from universities throughout the United States and Canada. Headquartered at Baylor University since 1989, with regional contests established within the world's university community, the ICPC has grown into a worldwide competition. To increase access to the World Finals, teams were reduced to three students within their first five academic years.<sup>[citation needed]</sup>

From 1997 to 2017, International Business Machines Corporation (IBM) was the sponsor of ICPC. During that time contest participation has grown by more than 2000%. In 1997, 840 teams from 560 universities participated. In 2017, 46,381 students from 2,948 universities in 103 countries on six continents participated in regional competitions. Organized as a highly localized extra-curricular university mind sport and operating as a globally-coordinated unincorporated association operating under agreements with host universities and non-profits, the ICPC is open to qualified teams from every university in the world.<sup>[citation needed]</sup>

UPE has provided continuous support since 1970 and honored World Finalists since the first Finals in 1976. The ICPC is indebted to ACM member contributions and ACM assistance from 1976 to 2018. Baylor University has served since 1985, hosting ICPC Headquarters since 1989. The ICPC operates as a globally-coordinated unincorporated association operating under agreements with host universities and non-profits to insure that participation in ICPC is open to qualified teams from every university in the world. See ICPC Policies and Procedures.<sup>[2]</sup>

The ICPC World Finals (The Annual World Finals of the International Collegiate Programming Contest) is the final round of competition. Over its history it has become a 4-day event held in the finest venues worldwide with 140 teams competing in the 2018 World Finals. Recent World Champion teams have been recognized by their country's head of state. In recent years, media impressions have hovered at the one billion mark.<sup>[citation needed]</sup>

Since 2000, only teams from Russia, China, and Poland have won the ICPC world finals. Participation in North America is much smaller than in the rest of the world, which is partially attributed to the perceived low payoff of participating.<sup>[6]</sup>

## Contest rules

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ICPC contests are team competitions. Current rules stipulate that each team consist of three students. Participants must be university students, who have had less than five years of university education before the contest. Students who have previously competed in two World Finals or five regional competitions are ineligible to compete again.<sup>[7][8]</sup>

During each contest, the teams of three are given 5 hours to solve between eight and fifteen programming problems (with eight typical for regionals and twelve for finals). They must submit solutions as programs in C, C++, Java, Ada,<sup>[9]</sup> Python<sup>[10][11]</sup> or Kotlin<sup>[12]</sup> (although it is not guaranteed every problem is



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solvable in any certain language, the ICPC website states that "the judges will have solved all problems in Java and C++" for both regional and world finals competitions). Programs are then run on test data. If a program fails to give a correct answer, the team is notified and can submit another program.

The winner is the team which correctly solves the most problems. If necessary to rank teams for medals or prizes among tying teams, the placement of teams is determined by the sum of the elapsed times at each point that they submitted correct solutions plus 20 minutes for each rejected submission of a problem ultimately solved. There is no time consumed for a problem that is not solved.<sup>[13]</sup>

Compared to other programming contests (for example, International Olympiad in Informatics), the ICPC is characterized by a large number of problems (eight or more problems in just 5 hours). Another feature is that each team can use only one computer, although teams have three students. This makes the time pressure even greater. Good teamwork and ability to withstand pressure is needed to win.