

## Melcome to Alberta

The Department of Computing Science at the University of Alberta, Edmonton, Alberta...

is honored to be the host for the ACM-ICPC World Finals. We are delighted to have you join us in beautiful Banff, Alberta. Congratulations to the competitors for earning the right to be here; this privilege only comes from years of hard work and a commitment to excel.

Computing Science is a field full of possibilities, and this championship contest is an opportunity for you to show off the breadth and depth of your knowledge. What makes it especially interesting to me is the team aspect, which reflects the reality of how large software projects are designed and built today. The days of the lone programmer working away in isolation are a thing of the past. Computing today is all about teams of people, often multidisciplinary in their composition.

Located in Edmonton, the University of Alberta's Department of Computing Science encourages creativity and teamwork in all tasks. Whether it be in class, doing assignments, solving research problems, or at play, we recognize the synergy and intellectual stimulus of community interactions. Our department has a great reputation for its collegial atmosphere, approachable professors, and its great research environment.



Athabasca Hall home of the Department of Computing Sceince at the University of Alberta

While you are here for the competition, don't neglect an important perk of your trip. Enjoy the stunning beauty of Banff, the Canadian Rocky Mountains, and all that Alberta has to offer. Don't miss out on the Icefields Parkway ("the most scenic drive in the world") and picturesque Jasper. From Jasper, continue on to Edmonton. Please drop in and visit our Department. Please contact us at rsvp@cs.ualberta.ca and let us know you are coming.

Congratulations again on earning a berth in the World Finals. I wish you the best for the competition and your future careers.

Chair, Department of Computing Science University of Alberta

The University of Alberta wishes to thank AET (Alberta Advanced Education and Technology) and iCORE for their **World Finals Host Support.** 











## Greetings from





weicome to Canada!

Welcome to the 32nd Annual ACM International Collegiate Programming Contest World Finals sponsored by IBM and hosted The University of Alberta. We have partnered with the UPE Honor Society and ACM to provide you with the finest possible setting here at the Fairmont Banff Springs Hotel.

The ACM-ICPC World Finals culminates the efforts of faculty and students from 1,821 universities in 83 countries that placed 6,700 teams at 213 regional

sites worldwide. The top 100 teams have advanced to the World Finals. Congratulations to all of you World Finals teams and to those who have made this possible.

These champions have earned the right to compete for further recognition as they seek medals and the elusive title of the "2008 World Champions." These World Finalists are here because they have "raced so as to win the prize."

They have developed extraordinary teamwork, skill, and problem-solving abilities through their determination and special opportunities provided by their coaches, faculty mentors, universities, regional contest hosts, and industry. Leaders of these communities here at the World Finals and around the globe are wishing them all continued success.

There are so many stars in the ICPC Community. UPE has served for 38 years, ACM has served for 32 years, and Baylor University has served for 25 years. In 11 years of IBM sponsorship, the ICPC expanded to universities in 83 countries on six continents posting 900% growth! As part of her Centenary Celebration, the University of Alberta has brought us to the Canadian Rockies, in beautiful Alberta, for the opportunity of a lifetime.

Here, among beautiful mountains, spacious skies, and heavenly lights, the brightest stars in the ICPC Universe are you, the 2008 World Finalists!

So, on behalf of the ICPC Community, Welcome to Banff!

William B. Poucher, Ph.D., ACM Fellow

ICPC Executive Director



#### Did you know?

The Computer Poker Research Group at the University of Alberta played world-class poker in the first Man-Machine Poker Challenge

Banff, Alberta, Canada | April 6-10, 2008

## Greetings from

Congratulations on qualifying for the 32nd annual ACM International Collegiate Programming Contest World Finals, the oldest, largest, and most prestigious competition in computing science and engineering among the world's great universities! As sponsoring executive, I am delighted to welcome you, on behalf of IBM, to Banff, Alberta, Canada, world-renowned for its scenic beauty. We hope you will have some time to explore the local sites and experience this aspect of Canadian culture.

All of you have been working hard to prepare for this year's Finals. The IBM team has also been hard at work enthusiastically planning for these next few days. We are very excited to be sharing this time with you. The ACM-ICPC World Finals is a gathering of the world's brightest young programmers, and you should be very proud to be in this group. We look forward to meeting each and every one of you at the many activities planned this week. Of course the highlight for me, and for all my IBM colleagues, will be watching you compete on the international stage on Wednesday.

IBM and ACM volunteers have been busy preparing an exciting agenda for you and your teammates to enjoy during the days we are together. We hope you take full advantage of being here to meet your fellow coaches and contestants from all over the world. Many long-lasting friendships have begun at the World Finals.

Some highlights of activities this week include:

- IBM Welcome Reception (Sunday evening) -- After you register and get your badge, come and join us for some food and mingling.
- IBM CyberCafe (Sunday through Tuesday evenings) This is the place to be each evening to check your email, play games, enjoy snacks, and hang out with new friends. The CyberCafe technology showcase gives you a look at leading edge, emerging technologies from IBM, and a chance to speak with IBMers from research, software development, university relations, as well as recruiting. Also included will be some especially interesting demonstrations assembled by our host, the University of Alberta.
- IBM Tech Trek (Monday) Explorations into new technologies, presented by IBM experts.
- Celebration! (Wednesday) I don't want to spoil the surprise of the post-contest celebration event, hosted by IBM. I'll just say that you WILL want to be there!

The World Finals are here at last. Be proud of what you have accomplished so far and take from this experience memories that remain with you forever. Most of all, enjoy yourself during this exciting and momentous week.

Best of luck!















Doug Heintzman Director of Strategy Lotus Software **IBM Software Group** 

## Greetings from **University of Alberta**



Indira V. Samarasekera, O.C. President and Vice-Chancellor University of Alberta

## ALBERTA

Office of the President

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www.ualberta.ca president@ualberta.ca

#### Message from the President and Vice-Chancellor

On behalf of the University of Alberta, I am delighted to welcome you all to the "Battle of the Brains", the 32nd Annual World Finals of the ACM (Association for Computing Machinery) International Collegiate Programming Contest in Banff, Alberta! The University of Alberta and its Computing Science Department are very proud to host this year's contest, as a part of our Centenary 2008 celebrations.

I wish to convey my sincere congratulations to all one hundred teams for advancing to the World Finals! Each of you place among the top 1% of the world's finest university students and faculty coaches in the computing sciences and engineering. It takes a great amount of creativity, innovation and teamwork to succeed in an international competition at this level, and wish you all the utmost success in reaching your full potential.

As the University of Alberta celebrates our 100th anniversary, we are drawn to reflect upon our historic past. The Computing Science Department was formed in 1964, and has since transformed from a small, unknown department to one of the largest and the best computing science departments in Canada with an international reputation for excellence. The University of Alberta's tradition of computing science excellence is continually growing due to the outstanding leadership and tireless efforts of students, staff and faculty

Because of these talented people, and others across the globe such as all you here today, computing technology changed dramatically and beyond recognition over the years. Your collective and creative forces enrich discovery and innovation, contributing to the latest developments in technology for the benefit of humanity and our global communities.

Please accept my sincere thanks for coming to this year's competition and sharing in this celebration of the University of Alberta's 100th year anniversary. I also thank IBM, ACM, and the UPE Honor Society for their great support of our brilliant students and this prestigious competition. Their partnerships help to drive your passion and intrigue for computing, and inspire discovery and learning for all. Best wishes to each of the 100 teams for an exciting competition and I hope you all enjoy your visit and the beauty of Banff, Alberta!

Yours sincerely.

Indira V. Samarasekera, O.C. President and Vice-Chancellor

#### Did you know?

Edmonton is named the "Festival City" because it hosts more than 25 different festivals annually.

## Greetings from Upsilon Pi Epsilon

#### **UPSILON PI EPSILON**

Honor Society for the Computing & Information Disciplines

On behalf of Upsilon Pi Epsilon (UPE), I welcome and congratulate you, who represent the 100 teams and their professors who are participants in the 2008 ICPC World Finals here in Banff, Canada. Your participation in the "Olympics of Computing" is a real testament to your dedication to the art of programming and your high standing in the world of the computing and information disciplines. We are all amazed by your talents and capabilities. To get here, you had to go through a very competitive sequence of contests in the countries and regions you represent.



Orlando Madrigal **Executive Director** Upsilon Pi Epsilon

Most of you traveled thousands of kilometers from various corners of the Globe in order to be here in Banff. Each team has one single goal - to win the 2008 World ICPC Finals. Regardless of where you stand at the conclusion of the 2008 ICPC, your presence here alone already signifies your standing as a champion and we in UPE congratulate all of you as champions of the computing world.

We always remain very thankful to IBM and its staff for their continuing support of this event. In addition, we wish to thank the University of Alberta for serving as host of the 2008 ICPC and UPE wishes to give special thanks to the students, staff, and faculty the University of Alberta's Computer Science Department for their willingness to take care of all of our contest needs. The ICPC is run by volunteers and we will always be grateful to those who are willing to be of service to this great event.

Best wishes to all of you.

Orlando S. Madrigal, Ph.D., Professor Emeritus

Department of Computer Science

California State University, Chico

upe@acm.org

**Executive Director** 

UPSILON PI EPSILON

Honor Society for the Computing & Information Disciplines

www.acm.org/upe/









UPE has chapters in more than 230 colleges and universities in U.S. and overseas; is recognized by both the ACM and the IEEE-CS; and is a member of the ACHS (Association of College Honor Societies) and IFEES (International Federation of Engineering Education Societies).



Welcome to the Finals of the 32<sup>nd</sup> Annual ACM International Collegiate Programming Contest.

ACM is extremely proud to present this contest. As President, I am delighted with its past successes. I attended the Tokyo Finals and they were both fun and inspiring I look forward to attending the contest in Banff, feeling the energy of the event, and to meeting you, the outstanding participants.

The ICPC is a remarkable phenomenon. This year, an amazing 6,700 teams representing 1,821 universities wouldwide competed at regional sites. All are to be congratulated for the talent they demonstrated. The members of the 100 teams that made it to the last stage, the Finals, are the best of the best.

Congratulations to all of you who have reached this point. You are already winners and probably the finest programmers in college today.

Special thanks are due to Bill Poucher for guiding and driving the contest all these years, making it one of the most exciting and challenging computing activities on the planet. We thank the hundreds of volunteers who keep the regional and wouldwide events hunning. We are grateful to Baylor University for its continuing strong support of Bill and the ICPC. ACM thanks IBM for ongoing support as the long-term sponsor of the contest.

See you in Canada, and best of luck to all!



Stuart Feldman
President, ACM



ACM interactional Collegists Programming Contest 2008 - Book, Alberto

#### Did you know?

Edmonton has a number of popular professional sports teams including the Edmonton Oilers NHL hockey team and the Edmonton Eskimos NFL Football team.

Banff, Alberta, Canada | April 6-10, 2008

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## Greetings from the World Finals Director

To all the teams, honoured guests, staff, and volunteers, welcome to the 32nd Annual ACM International Collegiate Programming Contest (ICPC) World Finals, sponsored by IBM!

On behalf of the University of Alberta, we are delighted that you could join us in scenic Banff and the Canadian Rocky Mountains. We are honoured to be the official host. In 2008, the University of Alberta, in the beautiful city of Edmonton, is also celebrating its 100th anniversary. Our University's principles of scholarship, leadership, and the pursuit of "whatsoever things are true" are mutually echoed in the hard work of all the team members, coaches, and supporters at the World Finals.

Congratulations on your achievement!

I want to personally thank the ICPC teams at Baylor University, IBM, the Banff Springs Hotel, and other groups for their key contributions towards making the World Finals possible. Finally, I want to thank the University of Alberta staff and volunteers who have put in hundreds of hours of work to make the ICPC a success.

We hope you will leave the event with many fond memories and great stories to tell your friends and families.

Congratulations, and best wishes in the competition,

Paul Lu

World Finals Director



Paul Lu
Associate Professor
Department of
Computing Science
University of Alberta



## Greetings from from Government

110 Bear Street Box 1260 Banff, Alberta Canada T1L 1A1 T 403.762.1207 F 403.762.1260

OFFICE OF THE MAYOR



Welcome to Banff!

On behalf of Council and the Town of Banff, it is with great pleasure to welcome the participants of the ACM - International Collegiate Programming Contest World Finals to our beautiful town. Events such as this play a very important role in our community and we are delighted that you have chosen Banff as the destination to host the finals.

An outstanding setting is only a part of what Banff has to offer visitors. It has a rich history, character and quality of life found nowhere else in the country. From outdoors to opera, there truly is something for everyone. And to top it off, Banff still has the relaxed friendliness distinctive to small towns. I hope that during your time here you will take some time to experience some of the features that make Banff such a special place!

Best wishes for a successful event and an enjoyable stay in our town.

Yours truly,

Mayor



Banff, Alberta, Canada | April 6-10, 2008

#### Did you know?

The University of Alberta is located in Alberta's capital city, Edmonton.







### Greetings from from Government



Office of the Lieutenant Governor of Alberta 3 Floor, Legislature Building 10800 - 97 Avenue Edmonton, Alberta, Canada T5K 2B6

As the Queen's Representative in Alberta, it is my great pleasure to welcome everyone to the 32nd Annual ACM International Collegiate Programming Finals being hosted in breathtaking Banff. Understandably, the University of Alberta is very proud to have been chosen to be the academic host of this prestigious event which has attracted some of the world's finest students and faculty in the computing disciplines. This exciting competition will challenge your ability to be creative, innovative and work as a team under strict time restraints. It is a celebration of your ability to transfer technical information and ideas into practice with the hope of advancing and improving the future.

Special thanks to the volunteers, support staff and judges who have dedicated themselves to making this event possible. In addition, I would like to thank the public for their encouragement and support of the competitors.

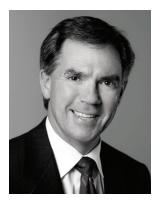
Please take some time to sample the warm western hospitality that Alberta is known for. I hope that you return to your homes with many good memories of your time in our province and a strong desire to return to sometime soon. My very best wishes to you all.

> Norman L. Kwong, CM AOE Lieutenant Governor of Alberta

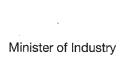
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## Greetings from from Government



Hon. Jim Prentice, P.C., Q.C., M.P. Minister of Industry and Regional Minister for Alberta



Ministre de l'Industrie

The Honourable L'honorable

Jim Prentice

Ottawa, Canada K1A 0H5

To all participants,

As Canada's Minister of Industry and Regional Minister for Alberta, I would like to extend congratulations and warm greetings to all of you who have advanced to the ACM International Collegiate Programming Contest World Finals.

This event brings together many of the best and brightest students in computer science, with teams participating from 100 universities around the globe. It is truly an honour for Alberta, through the work of the University of Alberta, to be hosting such a cutting edge international competition.

Good luck to all participants and my sincere thanks to all of the hardworking volunteers and organizers who have helped ensure the success of this event for all involved.

Sincerely,

The Honourable Jim Prentice, P.C., Q.C., M.P. Minister of Industry and Regional Minister for Alberta

## Canada

#### Did you know?

The University of Alberta is celebrating its 100th anniversary this year. When founded in 1908, there were 45 students enrolled.

Awards
Coaches Award













### **Coaches Award**

Presented to

Songshan Guo,

Zhongshan (Sun Yat-sen) University

Vladimir Kotov,

Belarusian State University

Andrey Stankevich,

St. Petersburg University of IT, Mechanics and Optics

**Andrey Lopatin,** 

St. Petersburg State University

Dieter van Melkebeek,

University of Wisconsin - Madison

In Recognition of your Commitment and Support

to the ACM-ICPC as an

**Outstanding Coach** 

9 April 2008 Banff, Alberta









## Awards The Mark Measures Award



The Thirty-second Annual **acm** International Collegiate

Programming Contest

sponsored by IBM

The Mark Measures
Distinguished Service Award

Presented to

## Ali Orooji University of Central Florida

for outstanding service and unflagging devotion to his many World Finals teams since 1989 and to the universities of the World for his service as World Finals Director for four years and Director of North American Contests since 1998.

The Mark Measures Distinguished Service Award is presented annually to a volunteer who has played an instrumental role in the sucess of the ICPC for fifteen or more years.

9 April 2008 Banff, Alberta

## Awards The DeBlais Awards











The Thirty-second Annual **acm** International Collegiate

Programming Contest
sponsored by IBM

The Joseph S. DeBlasi Outstanding Contribution Award

Presented to

Hans Domjan
Michael Korpi - Joel Korpi
David Hill - Lisa Donahoo

for outstanding service and accomplishment in telling the story of the ACM-ICPC World Finals through video and still photography since 1996

The Joseph S. DeBlasi Award is presented annually to a person or group who have played an instrumental role in the sucess of the ICPC for five or more years.

9 April 2008 Banff, Alberta







### Awards **ICPC Host Awards**

#### The Thirty-second Annual acm International Collection **Programming Contest** sponsored by IBM

#### The ICPC Distinguished International Service Award

#### The University of Alberta

for 100 years of service to and steadlast denotion to the of her learns of the past 30 years, culminating as

**University Host** 

of the

#### The 2008 World Finals

of the ACM International **Collegiate Programming Contest** 

The ICPC Distinguished University International Senice Award s presented annually to an institution that has played onal programs for ten or more years.

> 9 April 2008 Banff, Alberta

#### The Thirty-second Annual acm International Collegists **Programming Contest** sparsored by IBM

#### The ICPC Distinguished International Service Award

Presented to

The Department of Computer Science

### The University of Alberta

ordinary accomplishment of her teams in competition he ICPC Community of 1,821 universities, culminating as

> **University Host** of the

The 2008 World Finals

of the ACM International

**Collegiate Programming Contest** 

The ICPC Distinguished University Internat presented annually to an institution that has player an instrumental rule in the success of international anal programs for len or more years.

> 9 April 2008 Banff, Alberta

#### Did you know?

The University of Alberta is ranked among the top 100 public research-intensive universities in the world.

#### **Sponsored by IBM**

#### **Hosted by The University of Alberta**

## CyberCafé

Come to see cool technology demonstrations, and talk to the people from IBM Research and from the University of Alberta, who have helped create these amazing innovations. For example, Bluegrass is an IBM research project exploring the integration of virtual worlds in application contexts like Rational Jazz and Lotus Notes. Play checkers against the world famous Chinook program or try your luck against the world class poker programs developed at the U of A. There will also be a number of computers available for your use, as well as space for you to connect your own laptop.

On Monday morning, IBM presents hot topics like Web 2.0 applications, social networking trends and implications, and more from the cutting edge of innovation. This is an opportunity to hear from the experts and ask questions.



## Activities



## UPE Reception and Business Meeting

Come and meet the individuals who make UPE tick. Volunteers, teams, and guests of the ACM-ICPC World Finals will have a chance to interact, and each team in attendance will be presented with \$300. Those teams representing institutions with UPE Chapters will receive an additional \$450.

### The World Finals

The ACM Programming Contest World Finals will pit teams from six different continents against each other in once-in-a-lifetime event. Guided by knowledge, intuition, skill, and some luck, these teams will compete to be the next World Champion. Come watch the challenge unfold!

# The World Finals Celebration Sponsored by IBM

Following the ICPC Awards ceremony, this is one event you don't want to miss. Where is it, and what is it? It's a surprise, but you are sure to have a great











#### 18|19

## Schedule of Events

Sunday, April 6 - We	Location	Attendees	
7:30 AM - 8:30 AM	RCDS/CLI Registration & Breakfast Courtesy of U of A	Cascade	RCDS/CLS attendees
8:00 AM - Noon	RCD/CLI Symposium I	Cascade, NR Crump, President's Hall, Theatre	RCDS/CLS
Noon -1:30 PM	Volunteer Appreciation Luncheon	Alhambra	Invitation
1:45 PM - 5:00 PM	RCD/CLI Symposium II	President's Hall, NR Crump, Theatre	RDCS/CLS attendees
5:00PM - 9:30 PM	Team Registration	Mt Stephen Hall	Teams++
6:00 PM - 9:00PM	IBM Welcomes the Attendees (come and go) Food available from 6-8:30PM	Alberta/New Brunswick/ Cascade/River View Loung	All attendees ge
8:00 PM -11:30 PM	CyberCafé - come and go	Presidents Hall	All with badges
, ·	M Tech Trek - RCDS, CLS, Excursions	Location	Attendees
Monday, April 7 - IB/ 6:30 AM - 8:30 AM	M Tech Trek - RCDS, CLS, Excursions  Breakfast  Courtesy of U of A	Location  Cascade  River View Lounge	Attendees Teams++ with badges
, ·	Breakfast	Cascade	
6:30 AM - 8:30 AM	Breakfast Courtesy of U of A  RCD/CLI/Staff Breakfast	Cascade River View Lounge	Teams++ with badges
6:30 AM - 8:30 AM 6:30 AM - 8:00 AM	Breakfast Courtesy of U of A  RCD/CLI/Staff Breakfast Courtesy of U of A  Regional Contest Directors'	Cascade River View Lounge Alhambra DC Coleman,	Teams++ with badges  RCD/CLI/Staff
6:30 AM - 8:30 AM 6:30 AM - 8:00 AM 8:00 AM - 9:00 AM	Breakfast Courtesy of U of A  RCD/CLI/Staff Breakfast Courtesy of U of A  Regional Contest Directors' Business Meeting	Cascade River View Lounge  Alhambra  DC Coleman, Sir Edward Beatty  President's Hall	Teams++ with badges  RCD/CLl/Staff  RCD attendees
6:30 AM - 8:30 AM 6:30 AM - 8:00 AM 8:00 AM - 9:00 AM 8:00 AM - 10:30 AM	Breakfast Courtesy of U of A  RCD/CLI/Staff Breakfast Courtesy of U of A  Regional Contest Directors' Business Meeting  RCD/CLISymposia III	Cascade River View Lounge  Alhambra  DC Coleman, Sir Edward Beatty  President's Hall  NR Crump, Theatre	Teams++ with badges  RCD/CLI/Staff  RCD attendees  RCD/CLI attendees
6:30 AM - 8:30 AM 6:30 AM - 8:00 AM 8:00 AM - 9:00 AM 8:00 AM - 10:30 AM 9:00 AM - 11:30 AM	Breakfast Courtesy of U of A  RCD/CLI/Staff Breakfast Courtesy of U of A  Regional Contest Directors' Business Meeting  RCD/CLISymposia III  IBM TechTrek Program  Excursion w/lunch	Cascade River View Lounge  Alhambra  DC Coleman, Sir Edward Beatty  President's Hall NR Crump, Theatre  Alberta/New Brunswick	Teams++ with badges  RCD/CLI/Staff  RCD attendees  RCD/CLI attendees  Teams++ with badges

#### Did you know?

The Department of Computing Science at the University of Alberta began in 1964, but computing was a focus at the university beginning in 1957.

Banff, Alberta, Canada | April 6-10, 2008

Tuesday, April 8 - Op	Location	Attendees	
6:30 AM - 8:30 AM	Breakfast Courtesy of U of A	Alberta,New Brunswick, all with badges Cascade, River View Lounge,	
9:00 AM - 10:30 AM	Opening Ceremony No one may enter once program has begun Spectators are pre-seated Coaches & teams to workstations - teams are to wear their ICPC shire	Van Horne Ballroom rts	All attendees limited public seating available
10:30 AM - Noon	Practice Session I  Photo at workstations. teams & onsite coach required	Van Horne Ballroom	All w ith badges Team
Noon - 1:00 PM	Host Luncheon	Presidents Hall	All with badges
	Courtesy of the U of A	Van Horne Foyer	
1:00 PM- 1:30 AM	Answers to Practice Session I	Van Horne Ballroom	All with badges
1:30 PM - 2:30 PM	Practice Session II Teams leave notebooks/supplies for Finals	Van Horne Ballroom	All with badges
2:30 PM - 5:30 PM	Activities	Presidents' Hall Foyer	All with badges
6:00 PM - 8:00PM	UPE Dinner Courtesy of IBM	Alberta/New Brunswick/ Cascade/River View Loun	All with badges ge
8:00 PM-11:30 PM	CyberCafé - come and go	Presidents Hall	All with badges
Wednesday, April 9 -	World Finals, Awards, Celebration	Location	Attendees
6:30 AM - 7:45 AM	Breakfast Courtesy of U of A	Alberta/New Brunswick/ Cascade/River View Loun	All with badges ge
7:45 AM - 8:00 AM	Prepare to enter the contest area Spectators enter the area first to view contestants	Van Horne Ballroom	Teams & Spectatorrs
8:00 AM - 1:30 PM	ACM-ICPC World Finals Teams MUST wear ICPC Shirts. Notebooks are at stations	Van Horne Ballroom	All with badges
8:00 AM - 4:00 PM	CyberCafé - watch the World Finals	Presidents Hall	All with badges
9:00 AM - 11:00AM	Banff Community High School program	Theatre	Banff HS Students
10:00 AM - 10:45 AM	Coaches meet with the Executive Director	Alhambra	Coaches++
11:00 AM - Noon	Coaches Appreciation reception Courtesy of the U of A	Presidents Lobby	Coaches++
2:00 PM - 2:30 PM	Coaches Briefing	Theatre	On-site coaches
5:30 PM - 6:30 PM	ACM-ICPC World Finals Awards Ceremony	Van Horne Ballroom	All with badges Limited public seating
7:00 PM-11:00 PM	World Finals Celebration Hosted by IBM	Surprise!	All with badge









#### About the **World Finals**

For well-versed science students, some problems require precision only. Others require a knowledge and understanding of advanced algorithms. Still others are simply too hard to solve -- except, of course, for the world's brightest problem solvers.

The ACM-International Collegiate Programming Contest fosters creativity, teamwork and innovation in building new software programs, and enables students to test their ability to perform under pressure. Quite simply it is the oldest, largest and most prestigious programming contest in the world.

The contest pits teams of three university students against eight or more complex, real-world problems, with a five-hour deadline. Huddled around a single computer, competitors race against the clock in a grueling battle of logic, strategy and mental endurance.

Teammates collaborate to rank the difficulty of the problems, deduce the requirements, design test beds, and build software systems that solve the problems under the intense scrutiny of expert judges.

The ICPC traces its roots to a competition held in Texas A&M University in 1970 hosted by the Alpha Chapter of the UPE Computer Science Honor Society. The idea quickly gained popularity within the United States and Canada as an innovative initiative to assist the development of top students in the emerging field of computing science. The contest evolved into a multi-tier competition with the first Finals held at the ACM Computer Science Conference in 1977. Headquartered at Baylor University since 1989, the contest has expanded into a global network of

universities hosting regional competitions that advance teams to the ACM-ICPC World Finals.

Since IBM became a sponsor in 1997, the contest has increased by a factor of seven. Participation has grown to involve several tens of thousands of the finest students and faculty in computing disciplines at 1821 universities in 83 countries that competed at 213 sites for a spots in the World Finals.

Universities choose teams or hold local contests to select one or more teams to represent them at the next level of competition. Selections take place from a field of more than 300, 000 students in computing disciplines worldwide.

Regional contests are held from September to December. Once again this year, the contest grew with 213 sites hosting competitions. We had 6,700 teams vie to be part of the now 100 teams competing to be World Finals Champions.

This year the University of Alberta is hosting the World Finals in beautiful Banff, Alberta. The University, located in Alberta's capital city, Edmonton, is excited to be able to host so many bright students in a place as wonderful as the Fairmont Banff Springs Hotel. 2008 is a year full of milestones for the University, not only is it hosting this prestigious event, but it is also their 100th anniversary. In honour of the anniversary, ICPC decided to increase the number of teams from the originally scheduled 95 teams to 100 teams. Both the U of A and ICPC are excited about this growth and the opportunities it presents to so many deserving student teams.

#### Did you know?

The Department of Computing Science has 47 faculty and 196 graduate students. To find out who they are, go to www.cs.ualberta.ca/people.

Banff, Alberta, Canada | April 6-10, 2008

# ACM International Collegiate Programming Contest Team Participation Since 1989

Year	Teams	Universities	Sites	<b>Teams</b>	Sponsor
1989	400*	308*	12	25	SigBoard, Apple
1990	459	354	12	24	AT&T
1991	500*	386*	12	25	AT&T
1992	600*	400*	13	30	AT&T
1993	600*	400*	15	31	AT&T
1994	628	419*	16	35	Microsoft
1995	780	520*	22*	38	Microsoft
1996	800	533*	27*	43	Microsoft
1997	840	60*	34*	50	Microsoft
1998	1038	692*	49	54	IBM
1999	1456	839	63	62	IBM
2000	1968	1044	82	60	IBM
2001	2160	1079	89	64	IBM
2002	2362	1141	94	64	IBM
2003	2873	1329	106	70	IBM
2004	3150	1412	127	73	IBM
2005	4109	1582	144	78	IBM
2006	5606	1737	183	83	IBM
2007	6099	1756	205	88	IBM

Not included are hundreds of teams who competed in preliminary contests to qualify. More than 300 teams were turned away in 2004 due to lack of space.

\* denotes small discrepancies in old records are interpolated.











The Al program in the Department of Computing Science is one of the most sought after programs in North America

### Contest History **Past Winners**

1977 - Michigan State University 1994 - University of Waterloo 1978 - Massachusetts Institute of Technology 1995 - Albert-Ludwigs-Unviersitat Freiburg 1979 - Washington University, St. Louis 1996 - University of California, Berkeley 1980 - Washington University, St. Louis 1997 - Harvey Mudd College 1981- University of Missouri, Rolla 1998 - Charles University, Prague 1982 - Baylor University 1999 - University of Waterloo 1983 - University of Nebraska, Lincoln 2000 - St. Petersburg State University 1984 - John Hopkins University 2001 - St. Petersburg University 1985 - Stanford University 2002 - Shanghai Jiao Tong University 1988 - Caltech University 2003 - Warsaw University 1989 - University of California, Los Angeles 2004 - St. Petersburg Institute of Fine Mechanics & Optics 1990 - University of Otago, New Zealand 2005 - Shanghai Jiao Tong University 1991 - Stanford University 2006 - Saratov State University 1992- Melbourne University, Australia 2007 - Warsaw University 1993 - Harvard University

#### **Recent Gold Medal Winners In Order of Finish**

#### 2007

Warsaw University (Warsaw, Poland) Tsinghua University (Tsinghua, China) St. Petersburg University of IT, Mechanics & Optics (St. Petersburg, Russia) Massachusetts Institute of Technology (Boston, USA)

#### 2006

Saratov State University (Saratov, Russia) Jagiellonian University - Krakow (Krakow, Poland) Altai State Technical University (Barnaul, Russia) University of Twente (Enschede, The Netherlands)

Shangahi Jiao Tong University (Shangahi, China) Moscow State University (Moscow, Russia) St. Petersburg Institute of Fine Mechanics & Optics (St. Petersburg, Russia) University of Waterloo (Waterloo, Canada)

#### 2004

St. Petersburg Institute of Fine Mechanics & Optics (St. Petersburg, Russia) KTH Royal Institute of Technology (Stockholm, Sweden) Belarusian State University (Minsk, Belarus) Perm State University (Perm, Russia)

#### Did you know?

The solving of checkers, accomplished by Jonathan Schaeffer, Computing Science Department Chair, was considered one of the top 10 discoveries of 2007.

Banff, Alberta, Canada | April 6-10, 2008

### Policies and **Procedures**

### Mission:

The ACM International Collegiate Programming Contest (ICPC) provides college students with opportunities to interact with students from other universities and to sharpen and demonstrate their problem-solving, programming and teamwork skills. The contest provides a platform for the ACM, industry, and academia to encourage and focus public attention on the next generation of computing professionals as they pursue excellence.

Goals:

Decisions shall be governed by the following goals:

Attract as many students as possible.

Attract as many colleges and universities as possible.

Draw from as many areas of the world as possible.

Provide equitable access to the ACM-ICPC World Finals.

Strive for competitive contests.

Involve industry and shine the spotlight on students.

Maintain and support the volunteer base.



Organization:

Promote regional integrity.

Provide global coordination.

Policy:

Keep it simple.

Serve, don't rule.

Never have the same problem for the same reason.

Principles:

Put people first.

Follow the Golden Rule.

Solve all solvable problems; then resolve all resolvable problems; finally, avoid the rest.

Grow strong by resolving conflicts.









## Policies and **Procedures** - continued

## Membership and Tenure:

The ICPC Executive Committee is composed of the ICPC Executive Director, the ICPC Secretary, the Director of Regional Contests, the Finals Director, the Director of Judging, and at most five but not fewer than two other members. The ICPC Executive Director serves as chair. The immediate past ICPC Executive Director shall continue for one year as an additional member of the ICPC Executive Committee.

The contest is managed at Baylor University under the direction of Dr. William B. Poucher, who serves as the ICPC Executive Director. All other members of the ICPC Executive Committee are appointed by the ICPC Executive Director for renewable terms of office not to exceed two years. Every member of the ICPC Executive Committee shall have served for at least four years as a director, judge, or in some other critical volunteer management role, or shall be a sponsor representative. It is further expected that the ICPC Executive Director shall have served at least two years in organizing the ACM-ICPC World Finals.

In the event that the ICPC Executive Director cannot fulfill the duties of the office, the ICPC Executive Committee will select one of its members or a past ICPC Executive Director to assume those duties.

The ICPC International Steering Committee consists of the Director of Regional Contests who serves as chair, the ICPC Secretary, the Super Regional Directors, and at most five but not fewer than two other members. The ICPC Executive Director serves as an ex-officio member of this committee. The members of the committee other than the ICPC Secretary are appointed by the ICPC Executive Director upon the recommendation of the Director of Regional Contests for renewable terms of office not to exceed two years. Every member of the ICPC International Steering

Committee shall have served for at least two years as a director, judge, or in some other critical volunteer management role, or shall be a sponsor representative. The ICPC Executive Director makes all other appointments annually. An appointment to a committee or operational unit requires a recommendation from the committee chair or unit head. All appointees shall receive letters of appointment and annual recognition of service certificates. Every effort is made to continue those who have served, but not necessarily in the same role. The ICPC Executive Director may remove any appointee after consultation with those to whom the appointee reports.

## Organization:

The ICPC is a two-tiered competition among teams of students representing institutions of higher education. Teams compete in Regional Contests, from which top scoring teams advance to the ACM-ICPC World Finals. As determined by the ICPC Executive Committee, Regional Contests are grouped into Super Regions. Super Regional Champions and the overall ICPC World Champions are recognized at the ACM-ICPC World Finals. Gold, Silver, and Bronze medal winners are also recognized. The ICPC Executive Committee is responsible for establishing contest rules, policy, and guidelines. The ICPC Executive Committee shall operate independently in order to assure the integrity of the ICPC. The ICPC International Steering Committee establishes the Regional Rules within the context of the contest rules, resolves regional appeals, rules on internationalization issues, and recommends ways to make the contest more accessible and attractive to international participants. The ICPC International Steering Committee approves regional variations to the Regional Rules. The ICPC Executive Director shall manage contest affairs, oversee budgetary matters,

Did you know?

West Edmonton Mall is the world's largest shopping centre with shops, services and entertainment activities all under one roof.

and assure conformity with policies, procedures and sponsoring agreements. The ICPC Executive Director allocates, disburses, and authorizes the expenditure of all ICPC funds in consultation with affected ICPC leadership and in accordance with sponsoring agreements. The ACM-ICPC World Finals and Regional Contests are organized and directed by their respective directors. The Director of Judging is responsible for the oversight of past contest problems and defining the problem domain. The Finals Chief Judge supervises judging and resolves judging exceptions during the World Finals. The Director of Judging and Finals Chief Judge recruit and recommend judges and work together with them to formulate problems and establish judging criteria for the ACM-ICPC World Finals. Super Regional Directors are responsible for recruiting and recommending the appointment of Regional Contest Directors and coordinating their efforts with the ACM-ICPC World Finals.

#### Rules:

Contest Rules are determined by the ICPC Executive Committee in conjunction with the ICPC International Steering Committee and will be published within one week of the previous year's ACM-ICPC World Finals. These rules are interpreted and enforced by the ICPC Executive Director. If unforeseen circumstances dictate a rules change, the ICPC Executive Director shall make reasonable efforts to confer with affected parties before making such a change.

ACM-ICPC World Finals:

The ACM International Collegiate Programming Contest World Finals, hereinafter called the "World Finals," is an event held each year, typically during the month of March. Teams competing in the World Finals are selected from teams competing in Regional Contests. The World Finals is organized and administered by the ICPC Executive Director who also negotiates and arranges for World Finals facilities, activity meeting space, and hotel room accommodations. The ICPC Executive Director shall coordinate with the sponsor to assure availability of suitable space for sponsor events and activities. If the event is hosted by a conference, a letter of agreement shall be executed identifying all space and setup requirements and registration requirements as part of the

The Final Director is responsible for conducting the World Finals competition within the Contest Rules and guidelines established by the ICPC Executive Committee. The Director of Regional Contests is responsible for conducting the Regional Contest Directors' Symposium, the Regional Contest Directors' Meeting, and the ICPC International Steering Committee Meeting.

## Regional Contests:

Regional Contests are held each year according to the Regional Contest Rules, typically no later than the Sunday following the third Saturday in November. Each Regional Contest is organized and operated by a Regional Contest Steering Committee, chaired by a Regional Contest Director who appoints the members. At least one of the members must be a faculty or staff member from another university willing to host a Regional Contest in the future. The ICPC Executive Director appoints Regional Contest Directors at the recommendation of the Director of Regional Contests. Each Regional Contest Steering Committee localizes the Regional Rules for its own Regional Contest, subject to approval by the Director of Regional Contests. There must not be any deviation











### Policies and **Procedures** - continued

in eligibility criteria or in the process for appeal. It is presumed that regional contest rules will not deviate significantly from the Contest Rules so that teams might not be at a disadvantage when competing in the ACM-ICPC World Finals.

## Funding of Regional

Regional Contests are financially autonomous, ACM-ICPC-branded events of the host institutions. Nevertheless, Regional Contests must submit budgets for review to assure that funding and expenses are reasonable and that all sponsorship requirements are met, before administrative and logistical support for the Regional Contest may commence. All Regional Contests must award ICPC certificates, use ICPC badges, and provide conforming ICPC T-shirts. All Regional Contests must comply with ICPC sponsoring agreements regardless of whether ICPC or sponsor funding is provided.

## Upsilon Pi Epsilon

Upsilon Pi Epsilon, the International Computer Science Honor Society, has supported the ICPC longer than any other society. UPE sponsors awards for all ICPC World Finalists. UPE traditionally hosts a reception or luncheon for contest participants the day preceding the ACM-ICPC World Finals. The ICPC shall provide space and the basic set up for the UPE business meeting and reception or luncheon at no charge. The basic set up includes chairs, tables, risers, dais, and house microphone. Any other set up or decoration is at UPE expense.



## Sponsorship of the Contest

The ICPC Executive Director shall notify contest volunteers in a timely manner of requirements to comply with ICPC sponsoring agreements. Every effort shall be made to preserve sponsor benefits.

## Modifying the Policies and Procedures

These Policies and Procedures may only be modified by a 2/3 vote of the ICPC Executive Committee. The current Policies and Procedures shall be posted at the ICPC Web Site.

#### Did you know?

That the Edmonton has a vibrant arts and entertainment industry. Edmonton was named Canada's Cultural Capital for 2007.

## ACM-GCPC **World Finals Rules**

#### Introduction

The contest is a two-tiered competition among teams of students representing institutions of higher education. Teams first compete in Regional Contests, held around the world from October to November of each year. The winning team from each Regional Contest advances to the ACM International Collegiate Programming Contest World Finals, typically held in March. Additional high-ranking teams may be invited to the World Finals as Wild Card teams. These rules are subject to change..

## Organization

The ICPC is organized according to the ICPC Policies and Procedures. The Executive Committee, chaired by the Executive Director, sets the policy and general rules for the conduct of the contest. The Executive Director is solely responsible for interpreting the rules and for ruling on unforeseen situations.

## World Finals Team Requirements

Teams qualify to advance to the World Finals through Regional Contests. Only one team from a given institution may advance to the World Finals. Team members will be provided free one-year memberships in ACM at On-Site Registration. No team member on the qualifying team may have competed as a contestant in more than two previous World Finals.

The coach of a qualifying team is the point-of-contact prior to and during World Finals activities. The coach must complete certification at the Team Certification Web Site within five (5) business days of notification. Qualifying teams will be issued an invitation by email and postal mail within one business day of completing certification.

Qualifying teams requiring visas must initiate the process of applying for visas within 10 business days of being issued an invitation. Teams failing to comply with any of these requirements will be ruled ineligible to compete in the World Finals. Upon completion of these requirements, a qualifying team will be advanced to the World Finals.

A team advancing to the World Finals will be comprised of the same three members as when it qualified. In the event that a team member is unwilling, unable or unfit to compete in the World Finals, the coach must notify the ICPC Manager in a timely manner. A team member who is unwilling or unfit to compete in the World Finals will be disqualified from further ICPC competitions. The team member may appeal a disqualification to the Appeals Committee.

At on-site registration, participants must provide picture ID (passport, driver's license, etc). Contestants must show proof of enrollment at the university during the term of the regional contest at which they qualified. A letter on university stationary with the signature of a university official accompanied by an English translation is sufficient.

### Attendance

Finalists must attend all required events from On-Site Registration to Celebration as indicated in the Schedule of Events. Failure to attend any required event will result in disqualification and forfeiture of scholarships and prizes. Coaches must be accessible during On-Site Registration, the Practice Session, the World Finals, and the Awards Ceremony.











### ACM-GCPC **World Finals Rules**

## World Finals Support and Prizes

Each finalist team will be provided with hotel accommodations for the coach and three contestants for four nights, arriving three days before the World Finals and departing the day after. The hotel accommodations will either be a two-room suite or two separate sleeping rooms. The teams and coaches will be treated to a full schedule of activities including a full course of complimentary food functions. Transportation to the World Finals is the responsibility of the finalists. The ICPC encourages teams to raise funds for transportation and extracurricular activities from local sources, to better strengthen community ties among academia, industry, and government.

The UPE Computer Science Honor Society provides \$300 to each team attending the UPE Business Meeting, typically held the day before the World Finals, plus an additional \$450 to teams representing institutions with UPE chapters or who are in the process of establishing UPE chapters. Teams must attend the UPE Business Meeting to receive the UPE funds.

Teams finishing in the top four positions will be awarded Gold Medals. Those teams finishing fifth through eighth place will be awarded Silver Medals. Those teams finishing ninth through twelfth place will receive Bronze Medals. Additional Bronze Medals may be awarded.

The highest scoring team is the World Champion and will receive the World Champion Cup and plaques. The North American Champions, the Latin American Champions, the European Champions, the South Pacific Champions, the Asian Champions, and the Africa & Middle East Champions will be presented plaques.

The World Champion team will be awarded \$10,000. Each of the other three Gold Medal teams will be awarded \$3,000. Each Silver Medal team will be awarded \$2,000. Each Bronze Medal team will be awarded \$1,000. In the event of a tie, benefits of the affected places will be pooled and distributed evenly among the tying teams.

## Conduct of the World Finals

Eight or more problems have been posed in recent World Finals.

Problems will be posed in English. During the contest, all communications from contest officials to contestants will be in English. Each team may identify an interpreter for translating questions posed by contestants to contest officials. Contestants may bring electronic natural language translators provided that they do not support math operations.

Solutions to problems submitted for judging are called runs. Each run is judged as accepted or rejected, and the team is notified of the results. Rejected runs will be marked as follows:

- run-time error
- time-limit exceeded
- wrong answer
- presentation error

Notification of accepted runs will be suspended at the appropriate time to keep the final results secret. A general announcement to that effect will be made during the contest. Notification of rejected runs will continue until the end of the contest.

There is more to the University of Alberta than academics; with champion athletic teams, intramural sports, and a wide variety of social clubs there is always something to do on campus

ACM-GCPC **World Finals Rules** 

A contestant may submit a claim of ambiguity or error in a problem statement by submitting a clarification request. If the Judges agree that an ambiguity or error exists, a clarification will be issued to all contestants.

While the contest is scheduled to last five hours, the Finals Director has the authority to lengthen the contest in the event of unforeseen difficulties. Should the Contest duration be altered, every attempt will be made to notify contestants in a timely and uniform manner.

## Computing Environment

The World Finals programming language tools include Java and C/C++. See the Programming Environment Web Site, for detailed configuration information. Prior to the World Finals the judges will have solved all problems in both Java and C/C++.

Each team will be provided with a single computer and a calculator. All teams will have equivalent computing equipment.

Contestants may not bring any printed materials or machine-readable versions of software or data to the Contest Area. Contestants may not bring their own computers, computer terminals, calculators, or other electronic devices to the Contest Area.

Each team member may bring an unannotated natural language printed dictionary. On-line reference materials will be made available as described at the Reference Materials Web Site. Each team will be permitted to provide a PDF file of up to 25 pages of notes within the limits described at the Team Certification Web Site. Details are provided at On-Site Registration Instructions.

### Contestant Conduct in the Contest Area and During the World Finals

DO NOT TOUCH ANYTHING at the team workstations until so directed by the Finals Director.

Contestants are not to converse with anyone except members of their team and personnel designated by the Finals Director. Systems support staff may advise contestants on system-related problems such as explaining system error messages.

A team may be disqualified by the Finals Director for any activity that jeopardizes the World Finals such as dislodging extension cords, unauthorized modification of contest materials, or distracting behavior.

Secring of the World Finals

The World Finals Judges are solely responsible for determining the correctness of submitted runs. In consultation with the World Finals Judges, the Director of Judging is responsible for determining the winners of the World Finals. He or she is empowered to adjust for or adjudicate unforeseen events and conditions. Their decisions are final.

Teams are ranked according to the most problems solved. Teams placing in the first twelve places who solve the same number of problems are ranked first by least total time and, if need be, by the earliest time of submittal of the last accepted run.

The total time is the sum of the time consumed for each problem solved. The time consumed for a solved problem is the time elapsed from the beginning of the contest to the submittal of the first accepted run plus 20 penalty minutes for every previously rejected run for that problem. There is no time consumed for a problem that is not solved.











## Africa and the Middle East

## Cairo University - Faculty of Computers & Information

Salwa El Gamal, Coach Hamza Ibrahim, Contestant Mahmoud Ouda, Contestant Mohamed El-Asmar, Contestant

## The American University in Cairo

Sherif G. Aly, Coach Khaled Hafez, Contestant Remoun Metyas, Contestant Soha Hassan, Contestant

#### University of Cape Town

Marco Gallotta, Coach Migael Strydom, Contestant Tamara von Glehn, Contestant Timothy Stranex, Contestant

Regal and intimidating the average male big horned sheep stands between 5 and 6 feet tall. If you are lucky you may see one foraging at the road side.



#### Asia

## Amirkabir University of Technology

Seyyed Mostafa Arefiyan Khalilabad, Coach Hadi Moshayedi, Contestant Hossein Azizpour, Contestant Mohammad Reza Khani, Contestant

## Bangladesh University of Engineering & Technology

S.M. Hasibul Haque, Coach Md. Mahbubul Hasan, Contestant Sabbir Yousuf Sanny, Contestant Shahriar Rouf, Contestant

#### Beijing Jiaotong University

Oingyong Li, Coach Xudong Ma, Contestant Yongliang Wang, Contestant Yuelei Xie, Contestant

## Beijing University of Posts and Telecommunications

Ming Fang, Coach Hua Huang, Contestant Jinming Liang, Contestant Ruining Wang, Contestant

#### Bina Nusantara University

Henny Surya Ningsih, Coach Andrian Kurniady, Contestant Kenny Hartono, Contestant Timotius Sakti, Contestant

## Chennai Mathematical Institute

Narayan Kumar Krishnan, Coach Arnold Noronha, Contestant Hrushikesh Tilak, Contestan Kshitij Bansal, Contestant

#### College of Technology, Vietnam National University, Hanoi

The Duy Bui, Coach Dinh Tu Nguyen, Contestant Hoang Vu Nguyen, Contestant Thanh Hao Nguyen, Contestant

#### East China Normal University

Chunyun Xiao, Coach Boyang Zhou, Contestant Junkui Chen, Contestant Ziqiang Zhang, Contestant

## East West University

Firoz Anwar, Coach Mahbub Mozadded, Contestant Md. Arifuzzaman Arif, Contestant Sohel Hafiz, Contestant

#### Fudan University

Yonghui Wu, Coach Bailu Ding, Contestant Jiaqi Zhai, Contestant Wenlei Xie, Contestant

## Hong Kong University of Science and Technology

Rui Li, Coach
Sung Him Chui, Contestant
You Wu, Contestant
Zhepeng Yan, Contestant

## Indian Institute Of Technology Madras

Shankar Balachandran, Coach Pradhan Prashanth Kumar, Contestant Rahul Narayanamangalam Sekar, Contestant Vimalkumar Jeyakumar, Contestant

## Information and Communications University

Won Taek Song, Coach Minsung Hong, Contestant Taeyoon Lee, Contestant Yongrok Kim, Contestant

## Kim Chaek University of Technology

Myong Su Cha, Coach Ji Song Han, Contestant Ji Song Im, Contestant Jin Sok Pak, Contestant Kyoto University Ippei Ohbayashi, Coach

Norihiro Katsumaru,
Contestant
Toshiyuki Hanaoka,
Contestant
Yuichi Yoshida, Contestant

#### Nanjing University of Aeronautics and Astronautics

Shaohan Liu, Coach Cai Wang, Contestant Yonggang Luo, Contestant Yu Yan, Contestant

## Nanyang Technological University

Ouang Huy Nguyen, Coach Anh Tuan Khuc, Contestant Duc Dung Nguyen, Contestant Khac Nam Hua, Contestant

## National Institute of Technology, Trichy, India

Roster

Viswanathan K. Iyer, Coach Prasanna Shankaranarayanan, Contestant Siddharth Gopal, Contestant Venkatesh Basker, Contestant

World Finals

#### National Taiwan University

Pu-Jen Cheng, Coach Cheng-Chiang Tsai, Contestant Chih-Cheng Shih, Contestant Chun-Ju Yang, Contestant

## National University of Defense Technology

Peng Yuxing, Coach Lai Shiming, Contestant Yi Wei, Contestant Zhang Zhaoning, Contestant

#### Peking University

Wei Guo, Coach Jinyu Yao, Contestant Tao Lei, Contestant Teng Qin, Contestant











The majestic black bear is a commonly seen resident of Banff National Park. Cute and cuddly to look at but very dangerous in reality. Enjoy them from a distance.

#### Seoul National University

Jehee Lee, Coach Do Kyoung Lee, Contestant Jeehoon Kang, Contestant Jin Hyun Kim, Contestant

#### Shandong University

Meng He, Coach Fei Peng, Contestant Lei Meng, Contestant Mingfei Li, Contestant

#### Shanghai Jiao Tong University

Yong Yu, Coach Mingcheng Chen, Contestant Tao Xin, Contestant Zhao Zheng, Contestant

#### Sharif University of Technology

Kamran Bavar, Coach Mehdi Safar Nejad Broujeni, Contestant Nima Ahmadi Pour Anari, Contestant Vahid Liaghat, Contestant

#### The Chinese University of Hong Kong

Lap Chi Lau, Coach Ho Kwong Kane Ho, Contestant Tsz Chiu Kwok, Contestant Yu Hang Ng, Contestant

#### The University of Tokyo

Shun Sakuraba, Coach Kazuki Ota, Contestant Shuhei Takahashi, Contestant Sukehide Ushioda, Contestant

#### Tianjin University

Ruiguo Yu, Coach Liang He, Contestant Tao Wan, Contestant Xiang Ying, Contestant

#### Tsinghua University

Xiaojun Wu, Coach Dong Wang, Contestant Fan Long, Contestant Wenbin Tang, Contestant

#### University of Electronic Science and Technology of China

Gou Shengping, Coach Haibo Huang, Contestant Peizhe Shu, Contestant Xianghong Luo, Contestant

#### University of Natural Sciences - VNUHCM

Xuan Nhat Lam, Coach Anh Khoa Hong, Contestant Chi Thien Nguyen, Contestant Vinh Bao Dang, Contestant

#### University of Tehran

Manoucherhr Parsaei, Coach Nima Aghdaie, Contestant Soroush Radpour, Contestant Vahid Ghasemzadeh Tehrani, Contestant

#### Wuhan University

Dong Wenyong, Coach Cui Hanging, Contestant Cui Zheng, Contestant Gao Yunxiang, Contestant

#### **Zhejiang University**

Kai Weng, Coach Kun Yang, Contestant Xin Liu, Contestant Zechao Shang, Contestant

#### Zhongshan (Sun Yat-sen) University

Songshan Guo, Coach Huidong Zhang, Contestant Lei Wang, Contestant Zhaoyi Zhang, Contestant

Banff, Alberta, Canada | April 6-10, 2008

#### Europe

#### AGH University of Science and Technology

Tomasz Szydlo, Coach Andrzej Szombierski, Contestant Daniel Czajka, Contestant Marcin Wielgus, Contestant

#### Altai State Technical University

Elena Kryuchkova, Coach Andrey Akinshin, Contestant Artur Mogozov, Contestant Maxim Kolosovskiy, Contestant

#### Belarusian State University

Vladimir Kotov, Coach Mikita Lesnikau, Contestant Pavel Irzhauski, Contestant Uladzimir Kerus, Contestant

#### Helsinki University of Technology

Harri Haanpää, Coach Markus Ojala, Contestant Veli Peltola, Contestant Ville Pettersson, Contestant

#### Izhevsk State Technical University

Vladimir Tarasov, Coach Alexander Skidanov, Contestant Evgeniy Kuzyakov, Contestant Victor Kamashev, Contestant

#### Jagiellonian University

Pawel Idziak, Coach Alan Meller, Contestant Bartosz Walczak, Contestant Rafal Jozefowicz, Contestant

#### Lviv National University named after Ivan Franko

Natalia Zhuravlova, Coach Ostap Korkuna, Contestant Ruslan Babilya, Contestant Vasyl Biletskyy, Contestant

#### Moscow Institute of Physics & Technology

Eugene Barsky, Coach Daniil Shved, Contestant Igor Kvasov, Contestant Mihail Kostin, Contestant

#### Moscow State University

Evgeny Pankratyev, Coach Eugueny Shavlyugin, Contestant Ivan Popelyshev, Contestant Michael Levin, Contestant

#### Norwegian University of Science and Technology

World Finals

Tor Gunnar Høst Houeland, Coach Magnus Kristiansen, Contestant Ruben Spaans, Contestant Rune Fevang, Contestant

#### Novosibirsk State University

Tatyana Churina, Coach Dmitry Butyugin, Contestant Stepan Gatilov, Contestant Vladislav Kuzkokov, Contestant

#### Orel State Technical University

Oleg Sokov, Coach Dmitry Zhukov, Contestant Ilia Shishkov, Contestant Mikhail Ershov, Contestant

#### Oxford University

Damien Sereni, Coach Daniel Bundala, Contestant Frantisek Simancik, Contestant Jakub Zavodny, Contestant

The chipmunk is another common resident of the park. These little guys are pretty approachable, but don't be fooled. They will convince you to share your lunch and you'll get bit... hard! Don't feed the animals, they are all wild.



Through www.cs.ualberta.ca the Department of Computing Science has a chatroom available for potential students to ask questions about our programs.













You can see the power or water to cut through the stone. The Bow river has carved some very deep crevasses through the mountain.

## Petrozavodsk State University Denis Vlasov, Coach Ivan Arkhipov, Contestant

Maxim Spirichev, Contestant Viacheslav Medvedev, Contestant

## St. Petersburg State University Andrey Lopatin, Coach

Oleg Davydov, Contestant Sergey Kopeliovich, Contestant Yury Petrov, Contestant

## St. Petersburg University of IT, Mechanics and Optics

Andrey Stankevich, Coach Dmitry Abdrashitov, Contestant Dmitry Paraschenko, Contestant Fedor Tsarey, Contestant

#### Stavropol State University

Elena Bondarenko, Coach Ivan Krasilnikov, Contestant Kirill Gritsenko, Contestant Mikhail Babenko, Contestant

#### Universidad Complutense de Madrid

Luis Hernández Yáñez, Coach David García Soriano, Contestant Enrique Martín Martín, Contestant Luis Hernández Corbato, Contestant

#### Universität Karlsruhe (TH)

Michael Baur, Coach Arne Alex, Contestant Martin Bäuml, Contestant Moritz Kobitzsch, Contestant

#### University of Zagreb

Kresimir Malnar, Coach Igor Canadi, Contestant Lovro Puzar, Contestant Luka Kalinovcic, Contestant

#### Ural State University

Alexander Klepinin, Coach Alexey Samsonov, Contestant Daniil Ayzenshteyn, Contestant Igor Chevdar, Contestant

#### Vinnytsia National Technical University

Volodymyr Mesyura, Coach Andriy Kozachuk, Contestant Dmytro Bilous, Contestant Dmytro Korzhyk, Contestant

#### Warsaw University

Jan Madey, Coach Filip Wolski, Contestant Marcin Pilipczuk, Contestant Marek Cygan, Contestant

#### Latin America

## FaMAF - Universidad Nacional de Córdoba

Carlos de la Torre, Coach Lucas Rearte, Contestant Matías Moya, Contestant Pablo Dal Lago, Contestant Institute of Computing -University of Campinas Alberto Miranda, Coach André Linhares Rodrigues,

André Linhares Rodrigues, Contestant Guilherme Kunigami, Contestant Paulo Roberto de Almeida Costa, Contestant

#### Instituto Militar de Engenharia

Claudia Justel, Coach Rafael Paulino, Contestant Renato Paes Leme, Contestant Thiago Pereira, Contestant

## Instituto Tecnologico de Aeronautica

Armando Gouveia, Coach Anderson Aiziro, Contestant Felipe Souza, Contestant Rafael Daigo Hirama, Contestant

#### Instituto Tecnológico de Culiacán

María Lucía Barrón Estrada, Coach Guillermo Alberto Sandoval-Sanchez, Contestant Jesus Eduardo Urias-Barrientos, Contestant Jesus-Moises Osorio-Velazquez, Contestant

#### Universidad Centroccidental Lisandro Alvarado

Maria Auxiliadora Perez, Coach Alejandro Ignacio Lameda López, Contestant Camilo Ernesto Romero Cuevas, Contestant Carlos Alejandro Lameda López, Contestant

#### Universidad de Buenos Aires

Laura Bolognini, Coach
Leandro Groisman,
Contestant
Luciano Quintabani,
Contestant
Santiago Perez Gonzalez,
Contestant

#### Universidad de Guadalajara -CUCEI

Abelardo Gómez Andrade, Coach Juan Pablo Marin Rosas, Contestant Luis Enrique Vargas Azcona, Contestant Mario Alberto Diaz Torres, Contestant

#### Universidad de Guanajuato

Pavel Herrera Dominguez,
Coach
Gonzalo Montalván Gamez,
Contestant
Juan Francisco Padilla Franco,
Contestant
Miguel Ángel Covarrubias,
Contestant

#### Universidad de los Andes

Sonia Vivas, Coach Alejandro Sotelo, Contestant Federico Arboleda, Contestant Ivan Rey, Contestant

#### Universidade de São Paulo

World Finals

Wanderley Guimarães da Silva, Coach Cristiane Maria Sato, Contestant Guilherme de Azevedo Silveira, Contestant Leonardo Bespalhuk Facci, Contestant

#### North America

#### Brown University

John Jannotti, Coach Adrian Vladu, Contestant Dimitar Bounov, Contestant Greg Pascale, Contestant

## California Institute of Technology

Donnie Pinkston, Coach Ben Zax, Contestant Eui Woong Lee, Contestant Seung Woo Shin, Contestant

#### Carnegie Mellon University

Gregory Kesden, Coach Kee Tee Lawrence Tan, Contestant Nathaniel Bauernfeind, Contestant Young Sub Bae, Contestant

Alberta is all about diversity. See how quickly the landscape changes from the flattest of prairies to the rocky mountains.



There is a shortage of qualified computing professionals in North America.









#### Cornell University

Lars Backstrom, Coach Anand Bhaskar, Contestant Hooyeon Lee, Contestant Wei-Lung Tseng, Contestant

#### Duke University

Owen Astrachan, Coach Andrew Waterman, Contestant Jason Bosko, Contestant Matthew Rognlie, Contestant

#### Georgia Institute of Technology

David Van Brackle, Coach Chinmay Karande, Contestant David Foster, Contestant Marc-Antoine Pare, Contestant

#### Illinois State University

Mary Goodwin, Coach Jason Eilts, Contestant Kelly Doran, Contestant Nathan Fleming, Contestant

#### Iowa State University

Simanta Mitra, Coach Kirk Sykora, Contestant Michael Seibert, Contestant Pavel Kazatsker, Contestant

#### Massachusetts Institute of Technology

Martin Rinard, Coach Andrew Lutomirski, Contestant Bohua Zhan, Contestant Xuancheng Shao, Contestant

#### Michigan Technological University

David Poplawski, Coach Mikola Lysenko, Contestant Nicholas Smolinske, Contestant Ryan Richards, Contestant

#### Northwestern University

Peter Dinda, Coach Anda Bereczky, Contestant Nikola Borisov, Contestant Nikolay Valtchanov, Contestant

#### Princeton University

Indraneel Mukherjee, Coach Amirali Shanechi, Contestant David Costanzo, Contestant John Pardon, Contestant

#### Simon Fraser University

Bradley Bart, Coach Adi Himawan, Contestant Bo Chen, Contestant Simon Lo, Contestant

#### Stanford University

Gerald Cain, Coach Andy Nguyen, Contestant Chen Gu, Contestant Meng-Hsuan Wu, Contestant

#### University of Alberta

Martin Müeller, Coach Devin Doucette, Contestant Kevin Waugh, Contestant Steven Soneff, Contestant

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Kaitlin Sherwood, Coach Anton Likhtarov, Contestant Henry Wong, Contestant Nhan Nguyen, Contestant

#### University of Calgary

Jim Parker, Coach Darko Aleksic, Contestant Sean McIntyre, Contestant Tom Flanagan, Contestant University of Central Florida Ali Orooji, Coach Jeremy Elbourn, Contestant Nadeem Mohsin, Contestant Stephen Fulwider, Contestant

#### University of Delaware

Ben Breech, Coach Ben Karel, Contestant Matthew Grieder, Contestant William Lynch, Contestant

#### University of Florida

Dave Small, Coach Brianna Satinoff, Contestant Joshua Hartman, Contestant Miorel Palii, Contestant

#### University of Illinois at Urbana-Champaign

Marsha Woodbury, Coach Arindam Saha, Contestant Jacob Lee, Contestant Pichayoot Ouppaphan, Contestant

#### University of North Texas

Ryan Garlick, Coach Hector Cuellar, Contestant John Rizzo, Contestant Robert Burke, Contestant

#### University of Saskatchewan

Christopher Dutchyn, Coach Christoph Dittmann, Contestant K.C. Cinnati Loi, Contestant Travis Calder, Contestant

#### University of Texas at Austin

Ryan Pai, Coach Andrey Petrov, Contestant David Wahler, Contestant Pathikrit Bhowmick, Contestant

#### University of Waterloo

Gordon Cormack, Coach Konstantin Lopyrev, Contestant Simon Parent, Contestant Yang Peng, Contestant

#### University of Wisconsin Madison

Dieter van Melkebeek, Coach Chunsong Wang, Contestant David Malec, Contestant Jason Malinowski, Contestant

#### South Pacific

#### Griffith University

Team Name: The Toclafane Andrew Rock, Coach Katie McLaughlin, Contestant Michael McMullen, Contestant Nicholas Dahm, Contestant

World Finals

#### University of Auckland

Team Name: Thursday Michael Dinneen, Coach Heather Macbeth, Contestant Matthew Gatland, Contestant Matthew Steel, Contestant

> Mountain goats traversing the characteristically rocky terrain of their preferred home on the mountain side





The Department of Computing Science has 12 different research groups. Check them out at www.cs.ualberta.ca/research.







## 2008 World Finals **Staff and Volunteers**

## 9CPC Team

Roman Alekseenkov, ICPC Challenge 2009 Team Roy Andersson, Sub-contest Manager Samir Ashoo, Systems - PC^2

Per Austrin, World Finals Judge & 2009 World Finals Committee

Osman Ay, World Finals Judge John Bonomo, World Finals Judge

Bill Booth, CLIS Chief Editor

Troy Boudreau, Systems - PC^2

Stephen Bourne, ACM President Emeritus Corey Carbonara, ICPC Digital Media

Carlos Marcelino Casas Cuadrado, On-line Judging

Tomas Cerny, ICPC HQ Services

Don Chamberlin, World Finals Judge

John Clevenger, Contest Systems Director

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Marjene Comer, ICPC HQ Staff

Mattias de Zalenski, 2009 World Finals Committee

Joseph DeBlasi, ICPC Awards Committee

Hans Domjan, Digital Media Production

Jeff Donahoo, ICPC HQ Services Director

Lisa Donahoo, Digital Media Production

Paul Edelman, ICPC HQ Services

Roman Elizarov, CLS - Regional Challenge

Mats Erixon, 2009 World Finals Committee

Stuart Feldman, ACM President

Don Gaitros, Assistant World Finals Director

Vicki Gaitros, Registrar Assistant

Mikael Goldmann, 2009 World Finals Committee

Russell Harris, ACM Headquarters

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Ray Holder, ICPC HQ Services

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Josh Marshall, Videographer

Leigh Ann Marshall, ICPC Media Relations Manager

Michael Mirzayanov, ICPC Challenge 2009 Team

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Committee Chair

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Marsha Poucher, ICPC Manager

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Mikael Renström, 2009 World Finals Committee

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Miguel A. Revilla, ICPC Problem Archivist

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Robert Roos, World Finals Judge

Matthias Ruhl, World Finals Judge

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Angela Wu, ICPC Registration

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Kyung-Yong Chwa, Seoul

John Cigas, Mid-Central USA

James Comer, Regional Contests

Ricardo Dahab, South America

Adam Florence, Greater New York

Mohammad Ghodsi, Tehran

Phalguni Gupta, Kanpur

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C. J. Hwang, Asia

Thijs Kinkhorst, Northwestern Europe

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Krzysztof Lorys, Central Europe

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2008 World Finals

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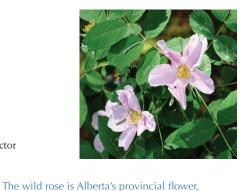
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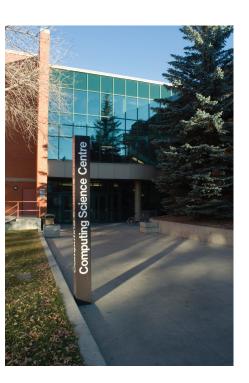
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2008 World Finals

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Maggie McCabe, IBM Global Talent Staffing Partner,

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Xiaomei Wang, Information Management, IBM Toronto Lab, Toronto, ON

Joshua Woods, Java Software Developer, IBM Corporation, Southbury, CT



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Paul Sorenson

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Babak Behsaz

Babak Bostan

David Chodos

Kelvin Chow

Neesha Desai

Russell Dodd

Lyudmyla Dorosh

Jessica Enright

Freeman Fan



Summer in the city of Edmonton. The river valley provides residents with unlimited recreational opportunities.

Barry Gergel

Koosha Golmohammadi

Israat Haque

Kevin Jacobson

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Amin Jorati

Mohammad Shafiei Khadem

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The University of Alberta wishes to thank everyone who contributed to make this event a success. A special thank you goes to AET and iCORE for their financial support.

Banff, Alberta, Canada | April 6-10, 2008



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