Microsoft

Microsoft Research

Faculty Summit 2012

ADVANCING THE STATE OF THE ART

Welcome to the Microsoft Research Faculty Summit 2012

Tony Hey
Vice President, Microsoft Research Connections

Our 13th Faculty Summit

- Largest in-person participation – over 400
- 30 countries
- 238 institutions
- 29% women
  - 53 external presenters, 20% women
  - 41 internal presenters, 21% women
- 70% of you are here for first time

IDC White Paper October 2009

- Employment in the IT industry and of IT professionals in IT-using organizations will rise from a 2009 base of 35.6 million to 41.4 million jobs by the end of 2013.
- This growth of 3.0% a year through 2013 is more than three times faster than the growth of total employment.
- The IT market will drive the creation of more than 75,000 new businesses between now and the end of 2013. Most of these companies will be small and locally owned organizations.

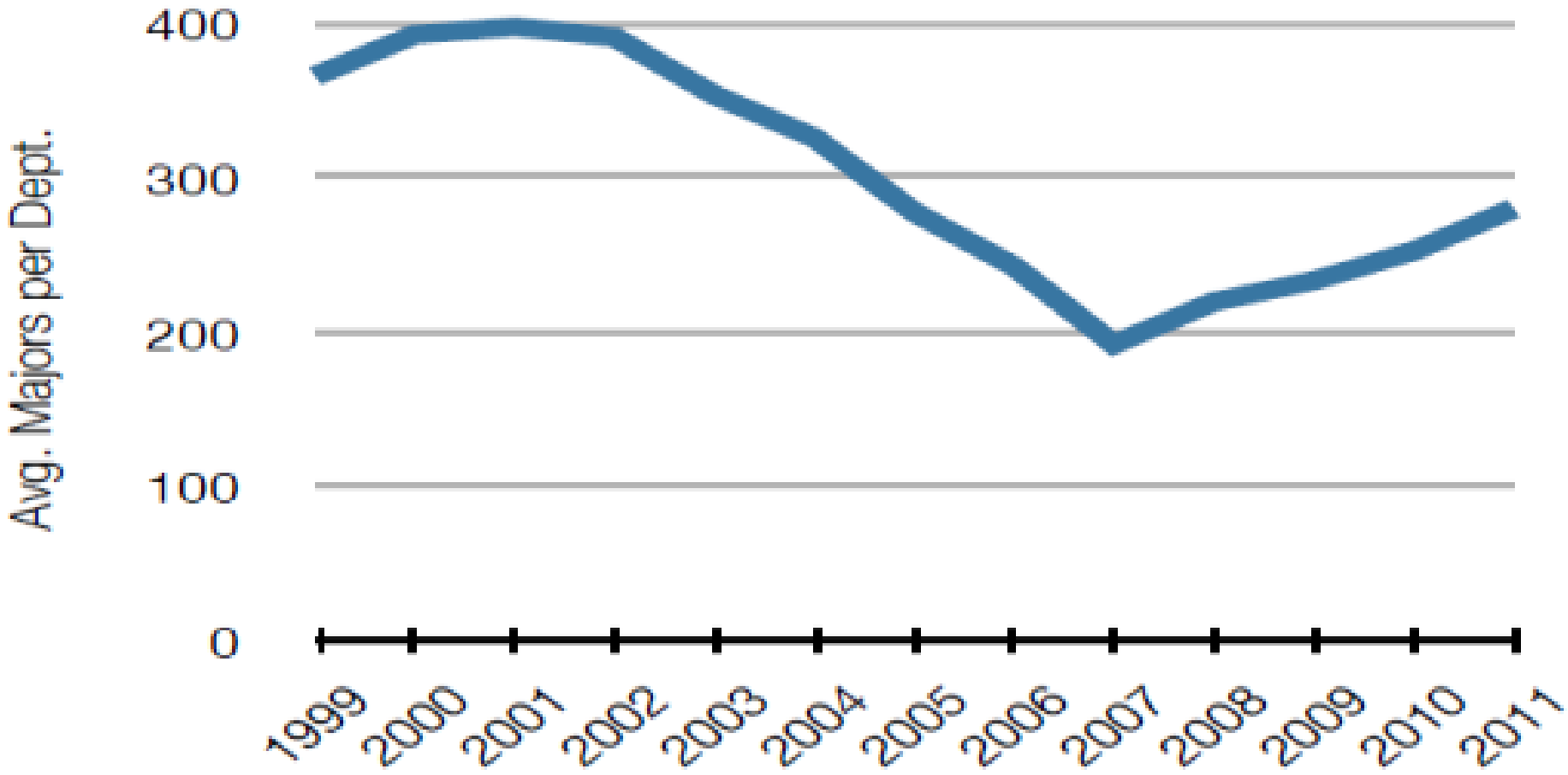
From the 2010-2011 CRA Taulbee Survey

- Among U.S. schools that reported data this year and last, enrollments in undergraduate computer science programs rose 9.6 percent in the 2011-12 school year – the fourth straight year of increase. Overall enrollment – including schools that did not participate in the survey last year – increased by 11.5 percent per department compared to the 2010-11 school year.

- Anecdotal reports suggest that, once again, growth in enrollment is being constrained at institutions not by student interest, but by enrollment caps in place in university computer science departments. Free of these caps – in place because of faculty or infrastructure limitations – enrollment figures might have reflected even larger increases.

From the 2010-2011 CRA Taulbee Survey

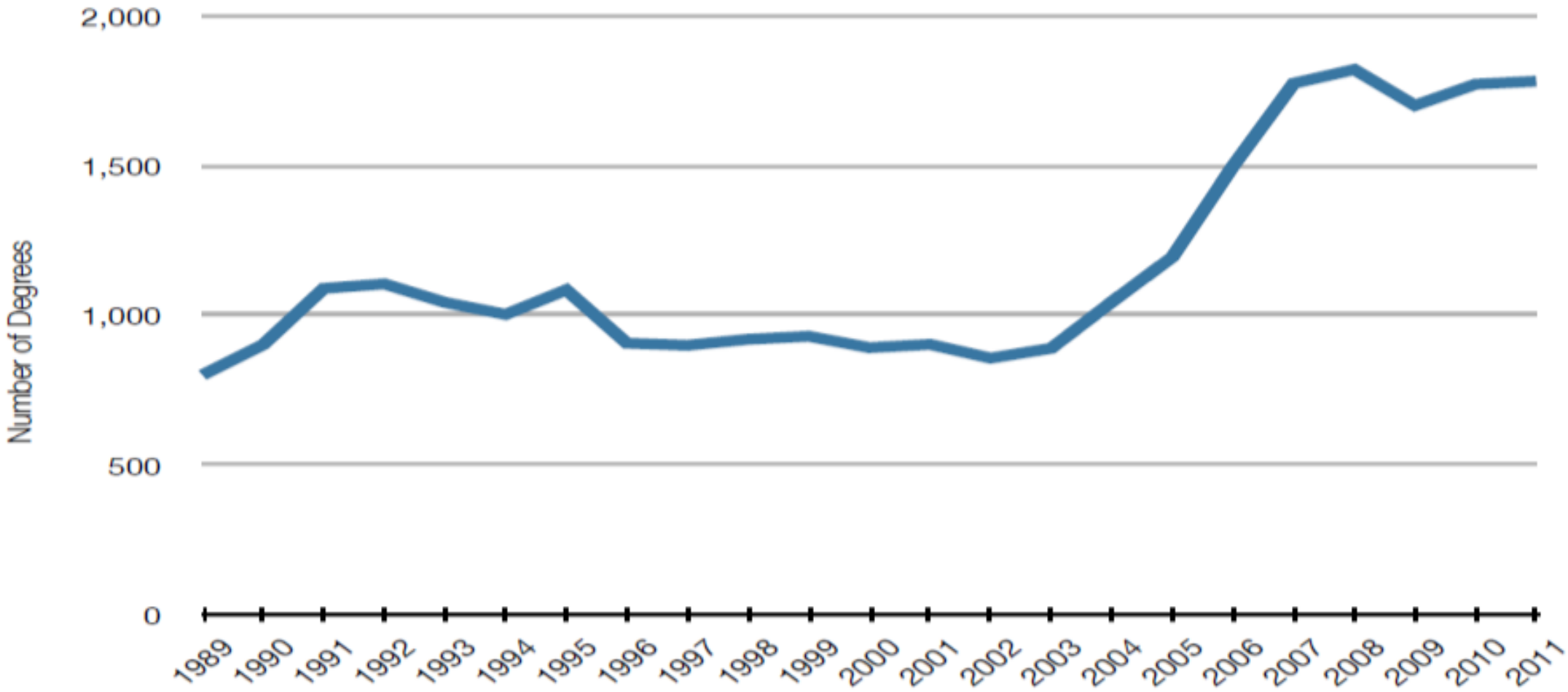
Figure 1. Average CS majors per U.S. CS Department



Source: Table 6: Total Bachelor's Enrollment by Department Type

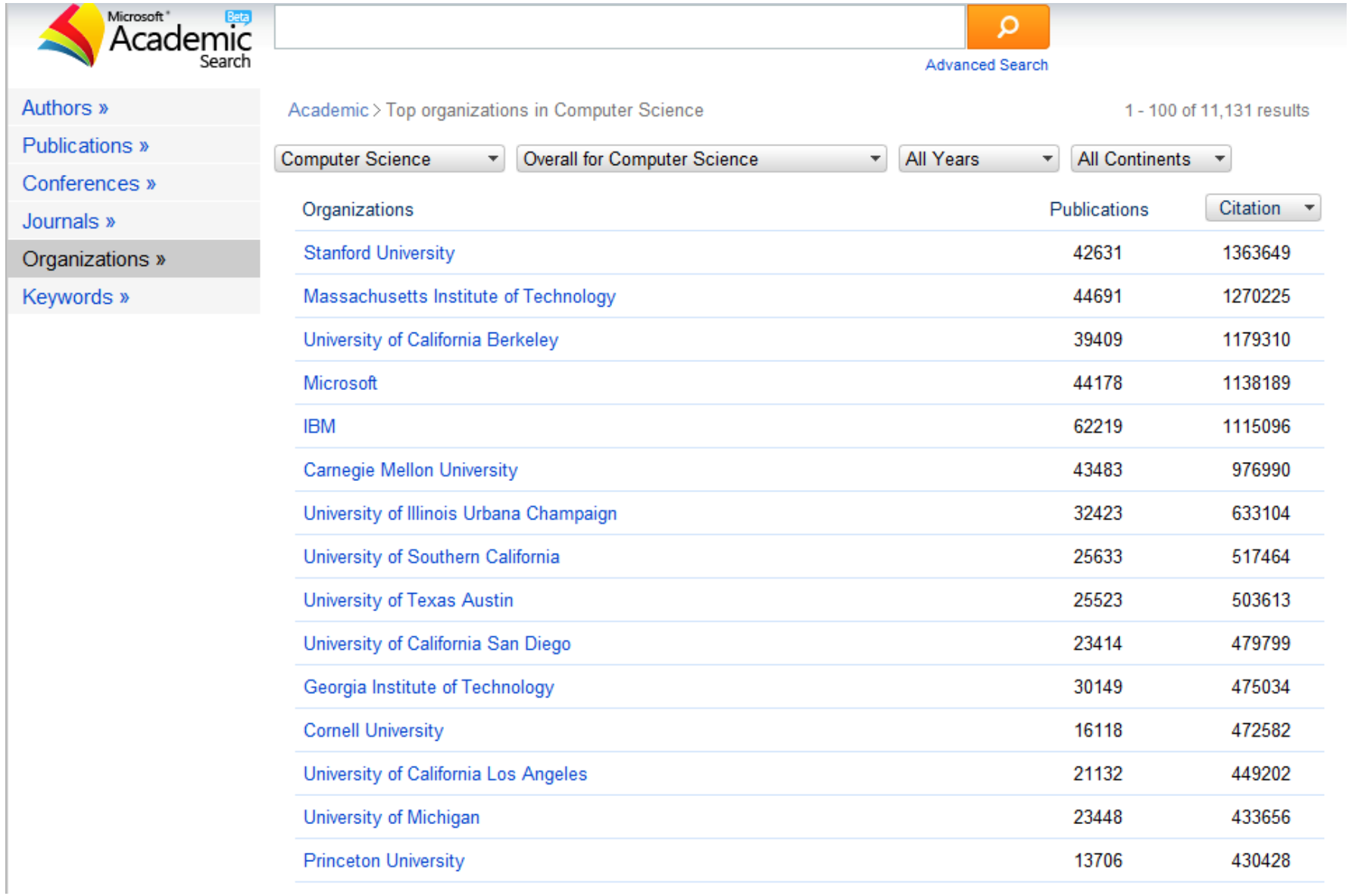
From the 2010-2011 CRA Taulbee Survey

Figure 3. Total Ph.D. Production (CS & CE, US and Canada)



Source: Table 11: PhD Production and Pipeline by Department

CS Citation Rankings – All Years



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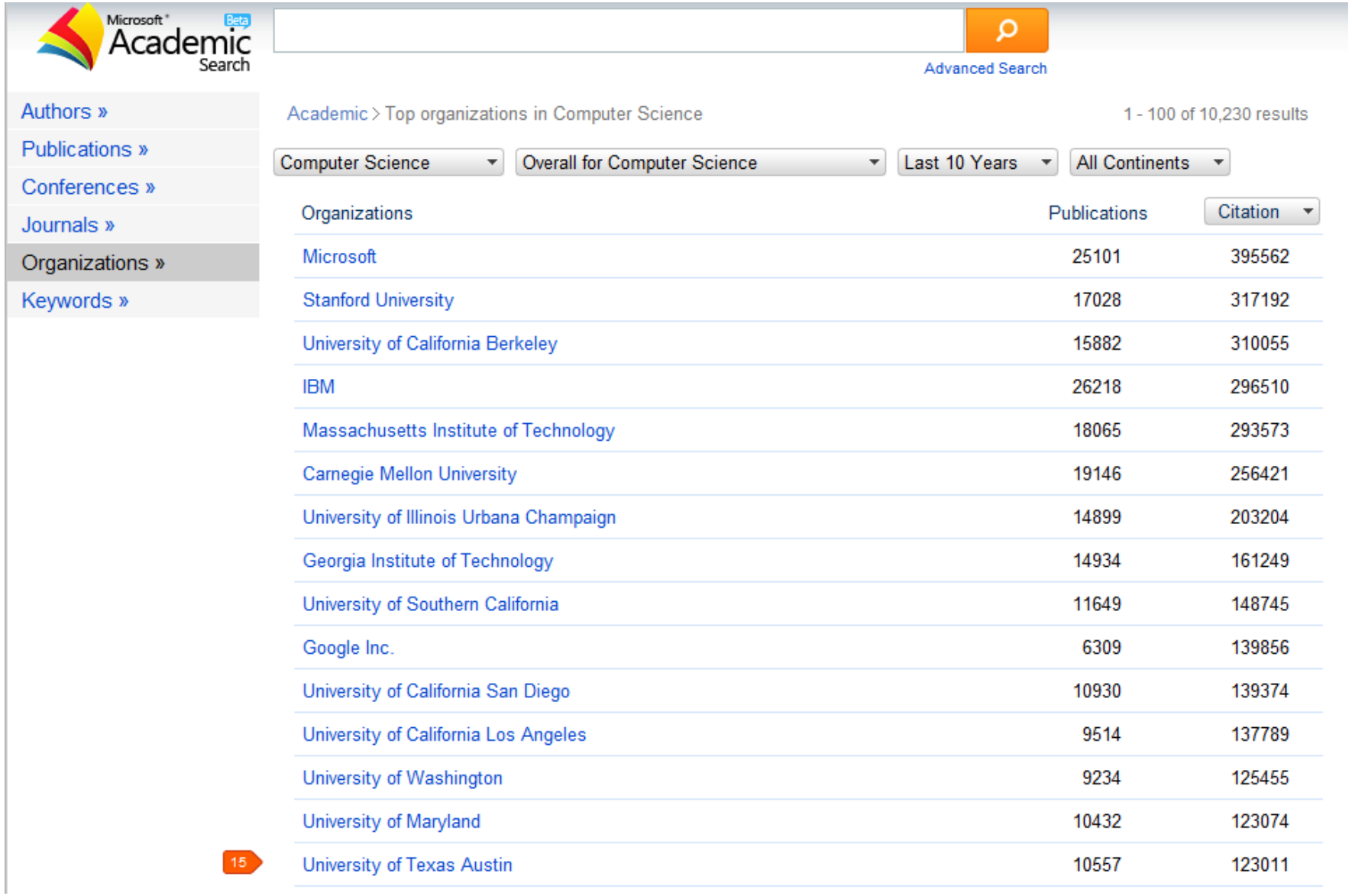
Academic > Top organizations in Computer Science

1 - 100 of 11,131 results

Computer Science | Overall for Computer Science | All Years | All Continents

Organizations	Publications	Citation
Stanford University	42631	1363649
Massachusetts Institute of Technology	44691	1270225
University of California Berkeley	39409	1179310
Microsoft	44178	1138189
IBM	62219	1115096
Carnegie Mellon University	43483	976990
University of Illinois Urbana Champaign	32423	633104
University of Southern California	25633	517464
University of Texas Austin	25523	503613
University of California San Diego	23414	479799
Georgia Institute of Technology	30149	475034
Cornell University	16118	472582
University of California Los Angeles	21132	449202
University of Michigan	23448	433656
Princeton University	13706	430428

CS Citation Rankings – Last 10 Years



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Academic > Top organizations in Computer Science

1 - 100 of 10,230 results

Computer Science | Overall for Computer Science | Last 10 Years | All Continents

Organizations	Publications	Citation
Microsoft	25101	395562
Stanford University	17028	317192
University of California Berkeley	15882	310055
IBM	26218	296510
Massachusetts Institute of Technology	18065	293573
Carnegie Mellon University	19146	256421
University of Illinois Urbana Champaign	14899	203204
Georgia Institute of Technology	14934	161249
University of Southern California	11649	148745
Google Inc.	6309	139856
University of California San Diego	10930	139374
University of California Los Angeles	9514	137789
University of Washington	9234	125455
University of Maryland	10432	123074
University of Texas Austin	10557	123011

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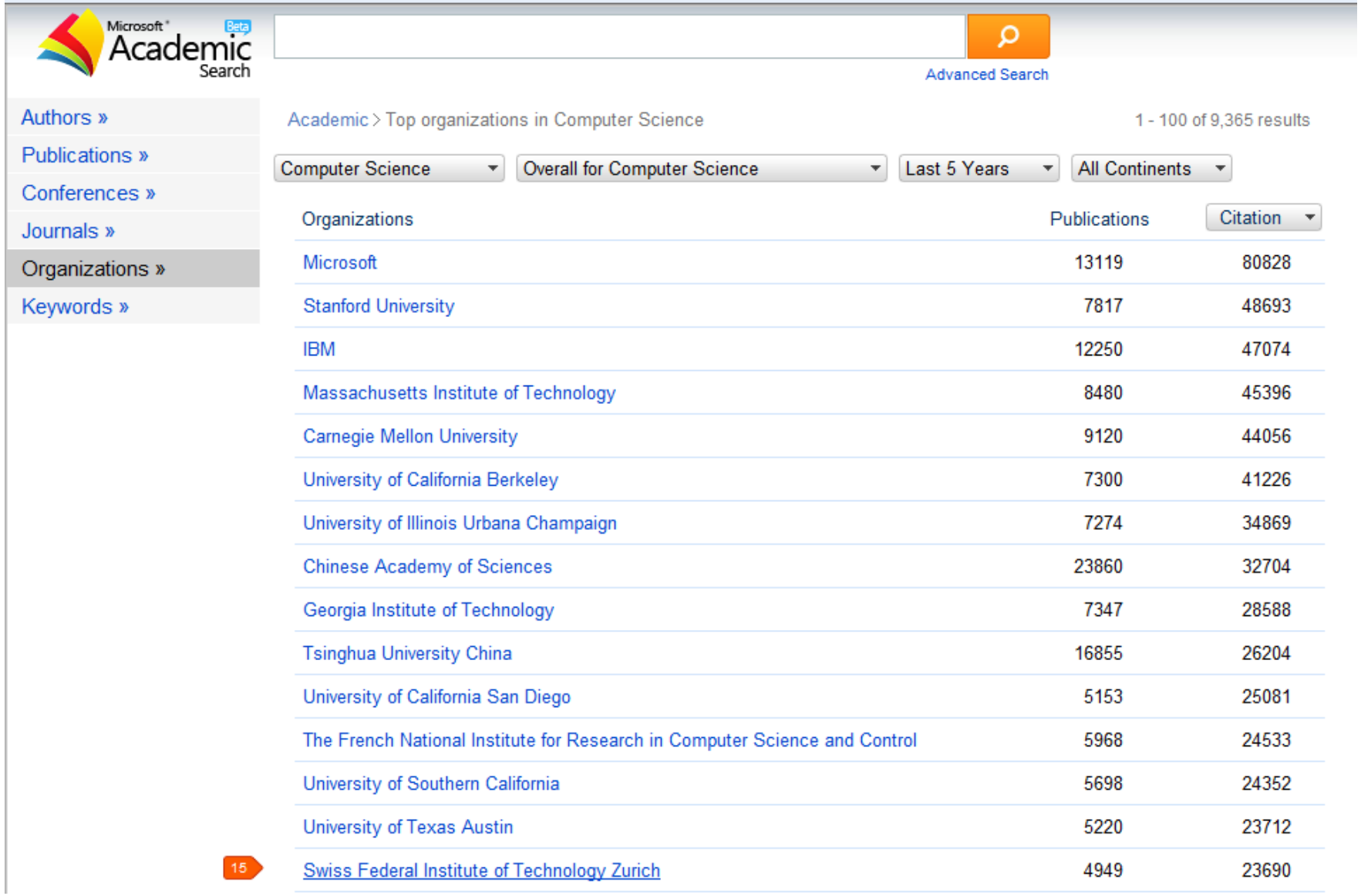
CS Citation Rankings – Last 5 Years



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Academic > Top organizations in Computer Science

1 - 100 of 9,365 results

Computer Science | Overall for Computer Science | Last 5 Years | All Continents

Organizations	Publications	Citation
Microsoft	13119	80828
Stanford University	7817	48693
IBM	12250	47074
Massachusetts Institute of Technology	8480	45396
Carnegie Mellon University	9120	44056
University of California Berkeley	7300	41226
University of Illinois Urbana Champaign	7274	34869
Chinese Academy of Sciences	23860	32704
Georgia Institute of Technology	7347	28588
Tsinghua University China	16855	26204
University of California San Diego	5153	25081
The French National Institute for Research in Computer Science and Control	5968	24533
University of Southern California	5698	24352
University of Texas Austin	5220	23712
Swiss Federal Institute of Technology Zurich	4949	23690

Health of the Computer Science Community

- According to statistics from the US Department of Labor employment of computer scientists is expected to grow by 19 percent through 2020

➢ The Computer Science community is key to job creation and to creating a better world

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Faculty Summit Keynotes

Predictions, Decisions, and Intelligence in the Open World

Eric Horvitz

Blending of Physical and Virtual Worlds: From Research to Reality

Rick Rashid

Mary Saunders

Paul Mitchell

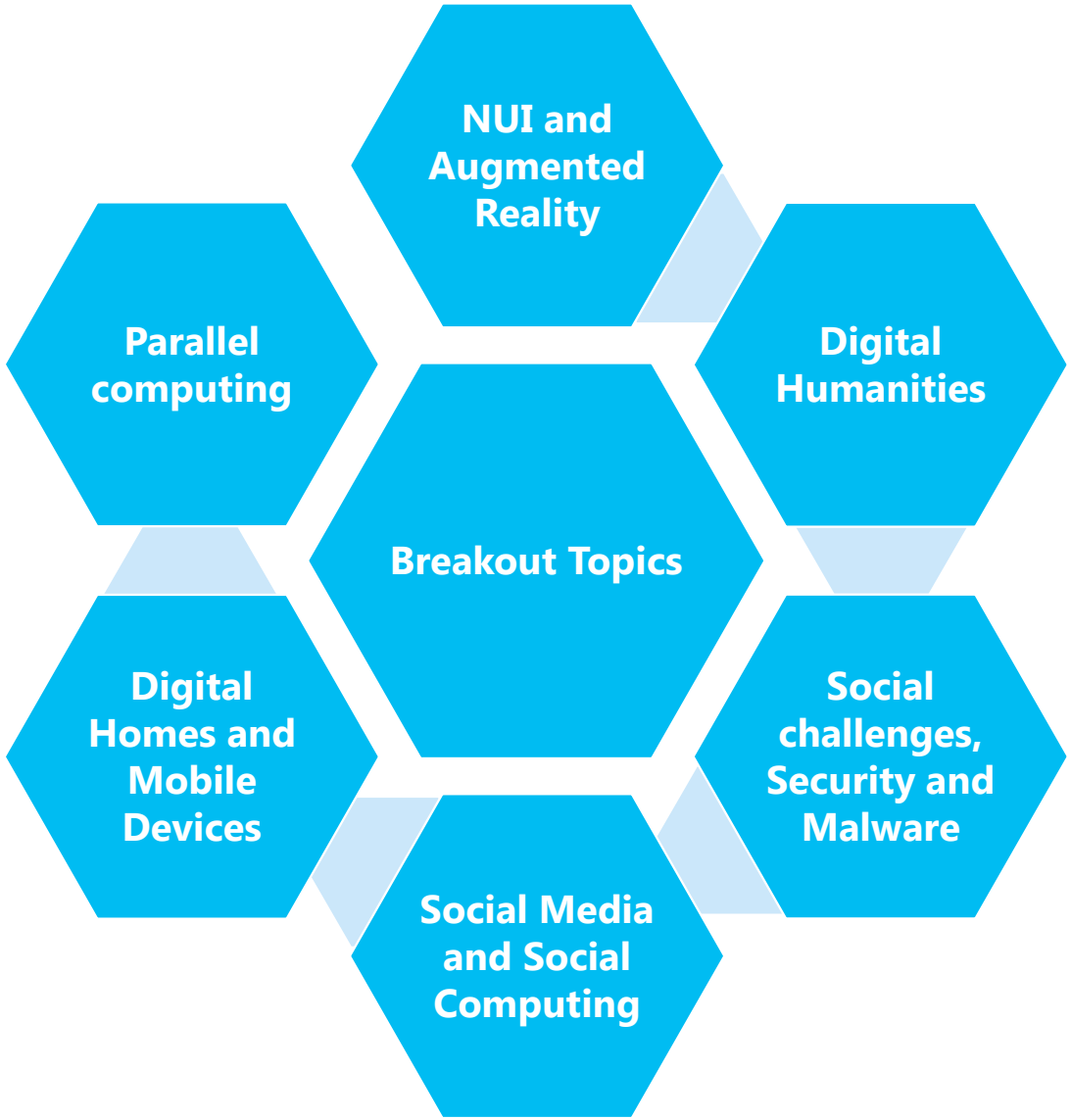
Sally Shipman Wentworth

Technology Policy: Shifting Sands in Internet Governance

Rivers of Ice: Vanishing Glaciers of the Greater Himalaya

David Breashears

Faculty Summit Breakout Sessions



AIDS Quilt: Digital Interactives

Size of a typical grave stone - 6′ by 3′

AIDS Quilt: Digital Interactives

49,000 panels **53 tons** **1.3 million sq. ft**

MRC Collaboration with USC, Brown University

25 years of photos into a single deepzoom image
Microsoft technologies: Bing, Pivot, PixelSense

Hear More at The Faculty Summit

2012 Microsoft Research Faculty Fellow Awards

Tony Hey, vice president
Peter Lee, corporate vice president

July 16, 2012

Microsoft Research Faculty Fellowship Program

Each year since 2005, Microsoft Research has recognized innovative, promising new faculty members from a number of research institutions to join the ranks of Microsoft Research Faculty Fellows.

This program now encompasses more than 50 academic researchers whose exceptional talent for research and innovation in computer science identifies them as emerging leaders in their fields.

The selected professors are exploring breakthrough, high-impact research that has the potential to help solve some of today's most challenging societal problems.

Each fellowship includes a cash award and access to other Microsoft resources such as software, invitations to conferences, and engagements with Microsoft Research.

Microsoft Research 2012 Faculty Fellows

2012 Faculty Fellows

Emma Brunskill

Carnegie Mellon University
Department of Computer Science

Emma's research focuses on creating automated decision systems that span artificial intelligence, machine learning, and human-computer interaction.

She is particularly interested in adaptive, individualized tutoring systems that learn and self-optimize.

Emma also works on health applications and on using information communication technologies to address challenges in low resource settings and developing regions.

Carnegie Mellon University

2012 Faculty Fellows

Constantinos Daskalakis

Massachusetts Institute of Technology

Department of Electrical Engineering and Computer Science

Constantinos' research studies the interface of computer science and economics, with a focus on computational aspects of the Internet, online markets, and social networks.

His work on the complexity of the Nash equilibrium was honored by the Game Theory Society with the First Computer Science and Game Theory prize.

He received his PhD in Computer Science from UC Berkeley and was a post-doctoral researcher at Microsoft Research prior to joining MIT.

MIT EECS

2012 Faculty Fellows

Stephen Gould

Australian National University
School of Computer Science

Stephen's current research interests are in developing mathematical models that allow computers to learn how to interpret scenes from images.

This involves recognizing objects and understanding how they interact with other objects and with their environment.

Prior to his PhD, Stephen founded and worked in a number of start-up companies.

Australian National University

2012 Faculty Fellows

Andreas Krause

ETH Zurich

Department of Computer Science

Andreas' research is in learning and adaptive systems that actively acquire information and make decisions in large, distributed, and uncertain domains, such as sensor networks and the web.

His work spans theoretical aspects in machine learning and optimization, as well as interdisciplinary applications, ranging from community sensing to social networks.

He is a Kavli Frontiers Fellow of the U.S. National Academy of Sciences, and received an NSF CAREER award as well as several best paper awards.

ETH
Eidgenössische Technische Hochschule Zürich
Swiss Federal Institute of Technology Zurich

2012 Faculty Fellows

Miriah Meyer

University of Utah
School of Computing

Miriah's research lives at the interface of computer science and data-intensive domains, where she designs interactive systems that help scientists make sense of complex data.

Her current work focuses on nimble and intuitive visualization tools that support research in genomics and molecular biology.

Her tools are integrated into the workflow of numerous biological labs and have led to scientific discoveries and to the validation and refinement of experimental and computational methods.

THE UNIVERSITY OF UTAH

2012 Faculty Fellows

Juan Carlos Niebles

Universidad del Norte

Electrical and Electronic Engineering

Juan Carlos is interested in helping computers and robots see the world.

His research is focused on designing novel algorithms for automatic recognition and detailed understanding of human motions, activities, and behaviors from images and videos.

This technology has the potential to enable new life-improving activity-aware systems, such as personal robots and smart homes, smart video surveillance, medical diagnosis, and more.

2012 Faculty Fellows

Ashutosh Saxena

Cornell University
Department of Computer Science

Ashutosh works on a new generation of robots that will operate fully autonomously in human environments.

His research is focused on the development of new machine-learning algorithms that enable robots to process sensory input data and perform tasks in unstructured environments.

His primary application domain is in assistive robotics, where his algorithms have enabled robots to perform tasks such as fetching items on verbal request and performing basic household chores.

Cornell University

Congratulations to the 2012 Faculty Fellows