



UIDPCONNECT

2020

New Challenges in the Global Research Landscape: Role of Universities in Enhancing U-I Partnerships

September 24, 2020 11:30 AM - 12 PM EDT



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New Challenges in the Global Research Landscape : Role of Universities in Enhancing U-I Partnerships

UIDP Connect 2020

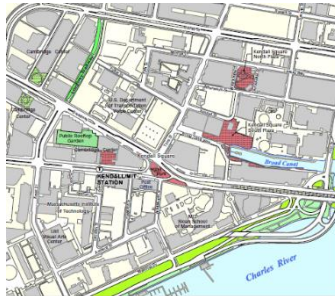
Sep 24th 2020

Theresa Mayer – Vice President for Research – Purdue University

Asheq Rahman – Research Solutions Manager - Elsevier



University Impacts on Regional Economies are both Direct and Indirect



MIT graduates started over 25,800 currently active companies with annual global sales of \$2T.

26% of revenues from Massachusetts firms from 6,900 companies founded by MIT graduates, generating 985,000 jobs.

California has an additional 526,000 jobs from 4,100 MIT-alumni firms, followed by New York with 231,000 jobs.

Over 30% of foreign MIT students found companies, more than half of which are located in the United States.

Formal entrepreneurial programs at MIT were started in the 1970's largely due to alumni efforts to organize them.

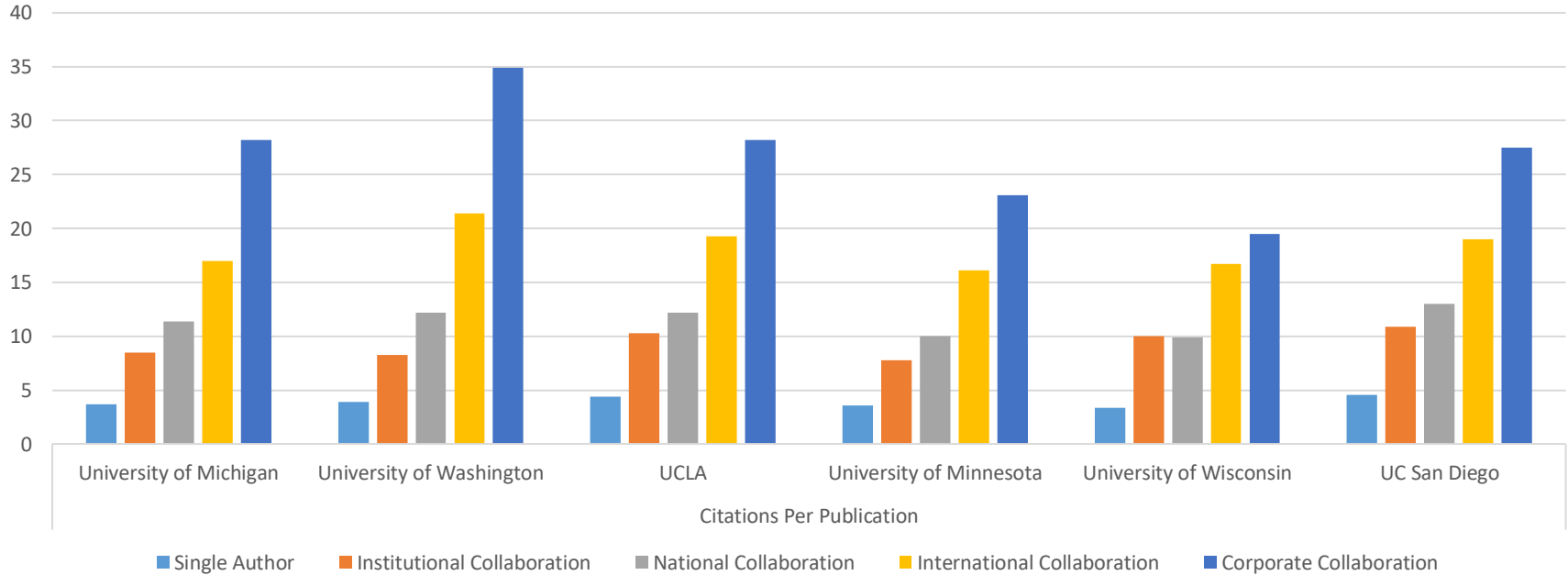
MIT has direct impacts both formally and informally on cluster formation in Greater Boston Area.

Source: MIT data in Kaufmann Foundation Study [MIT study executive summary](#)

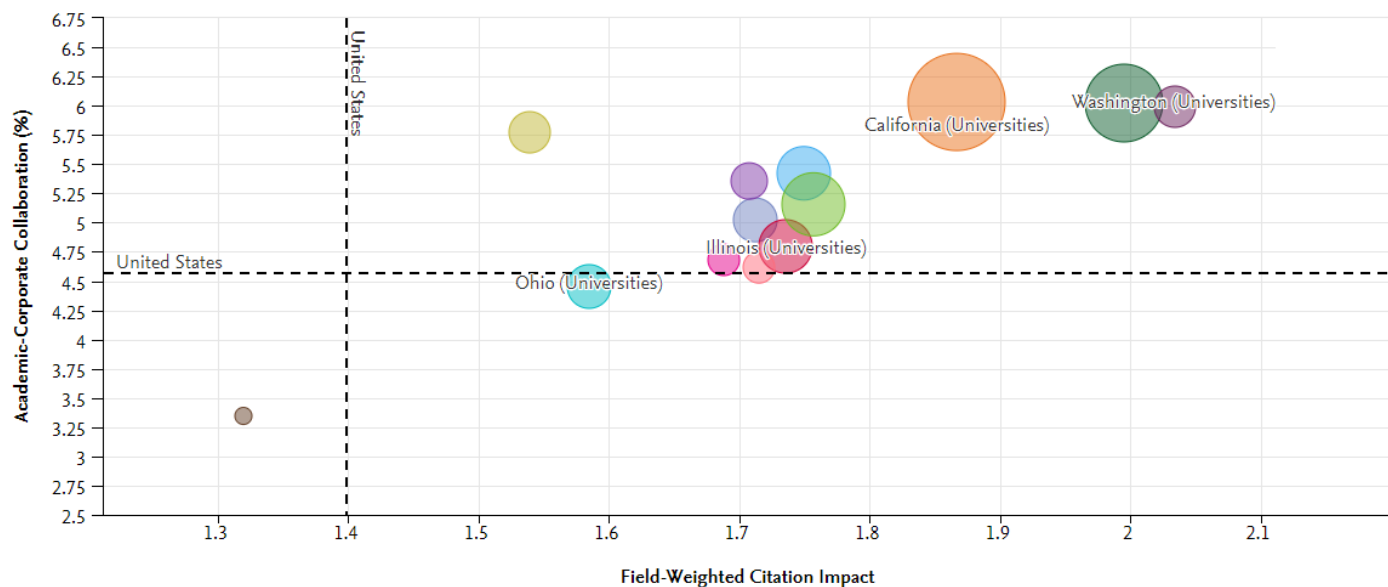
Kendall Square Then and Now



Effect of Corporate Co-Authorship on Citations



Academic Corporate Co-Authorship (2015- 2020)



- California (Universities)
- Massachusetts (Universities)
- Washington (Universities)
- Indiana (Universities)
- North Carolina (Universities)
- New Jersey (Universities)
- Pennsylvania (Universities)
- Georgia (Universities)
- Illinois (Universities)
- Arizona (Universities)
- Minnesota (Universities)
- United States
- Ohio (Universities)
- Nevada (Universities)

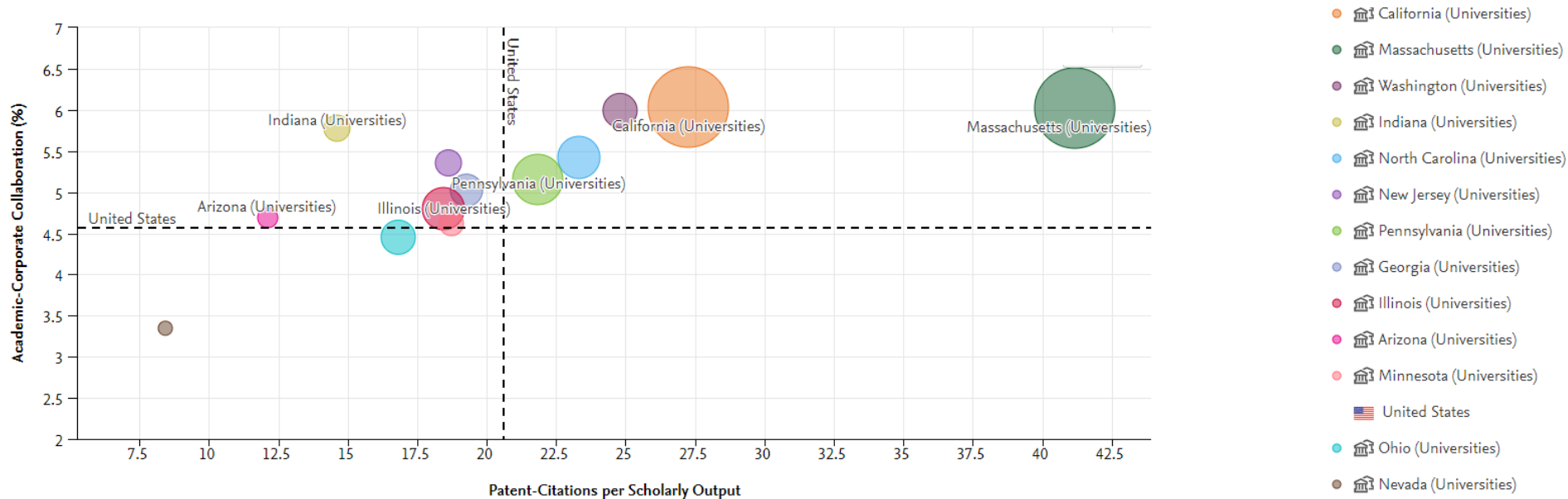
↓ y-axis: Academic-Corporate Collaboration (%)
 Types of publications included: all.

↓ x-axis: Field-Weighted Citation Impact
 Types of publications included: all. Self-citations included: yes.

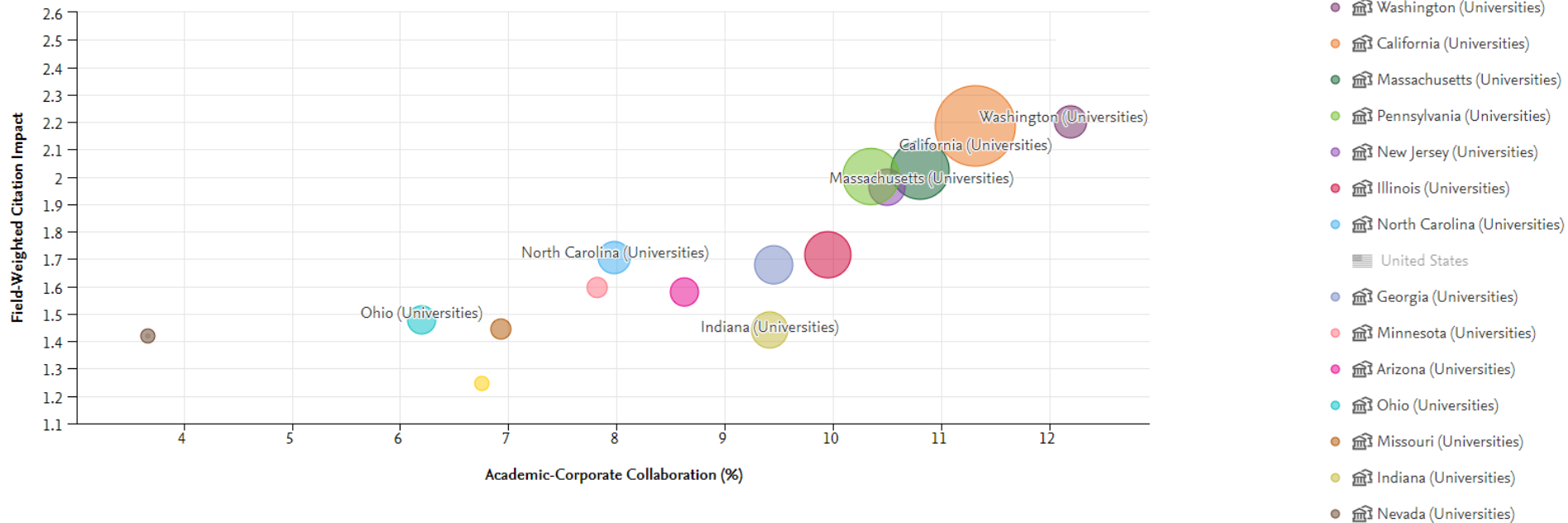
○ Bubble size: Academic-Corporate Collaboration (%)
 Types of publications included: all.



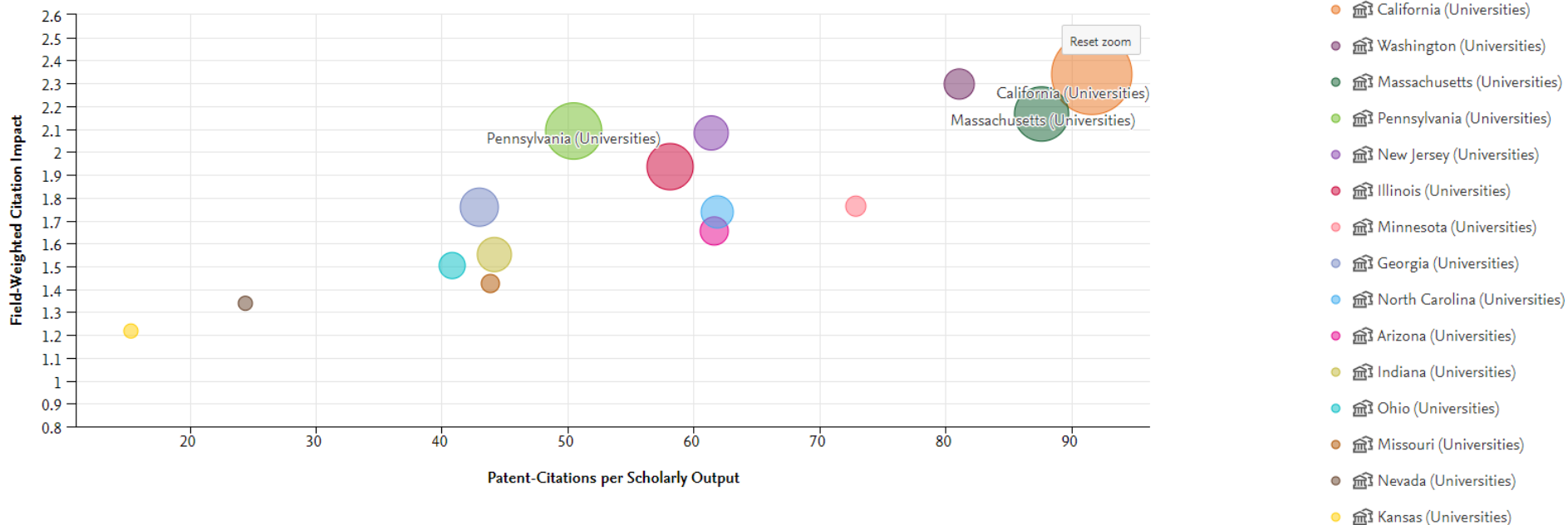
Academic - Corporate Co- Authorship and Patent Citations



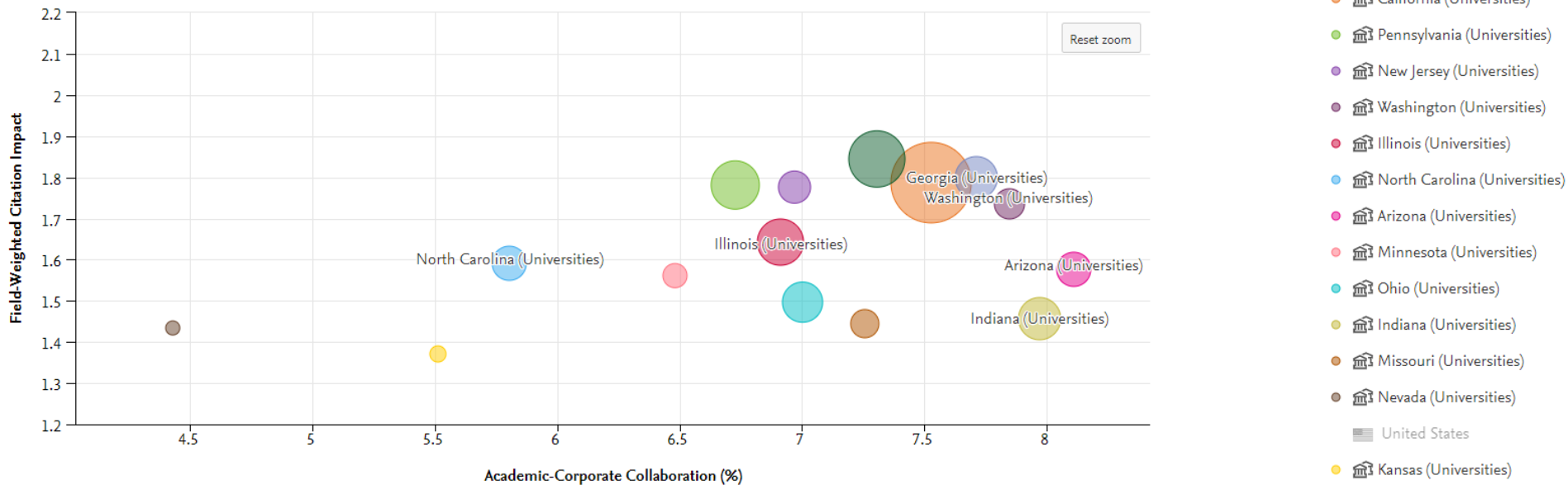
Computer Science – Academic/Corporate Collaboration



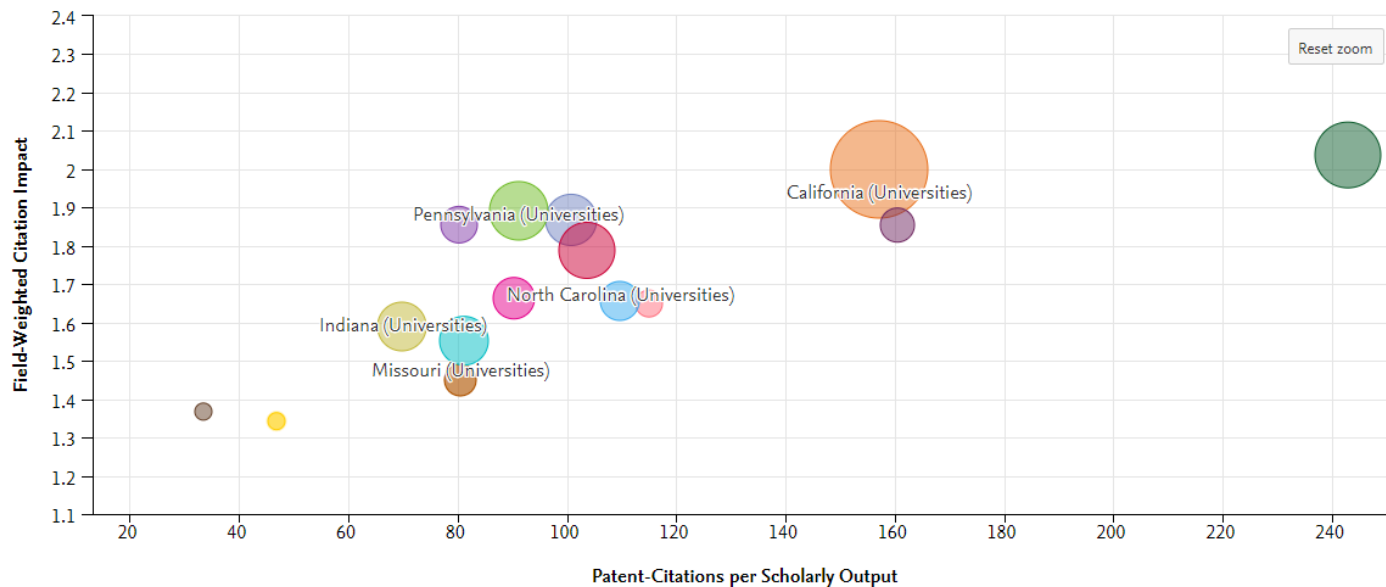
Computer Science – Patent Citations per 1000 papers



Engineering – Academic/Corporate Collaboration



Engineering- Patent Citations per 1000 papers

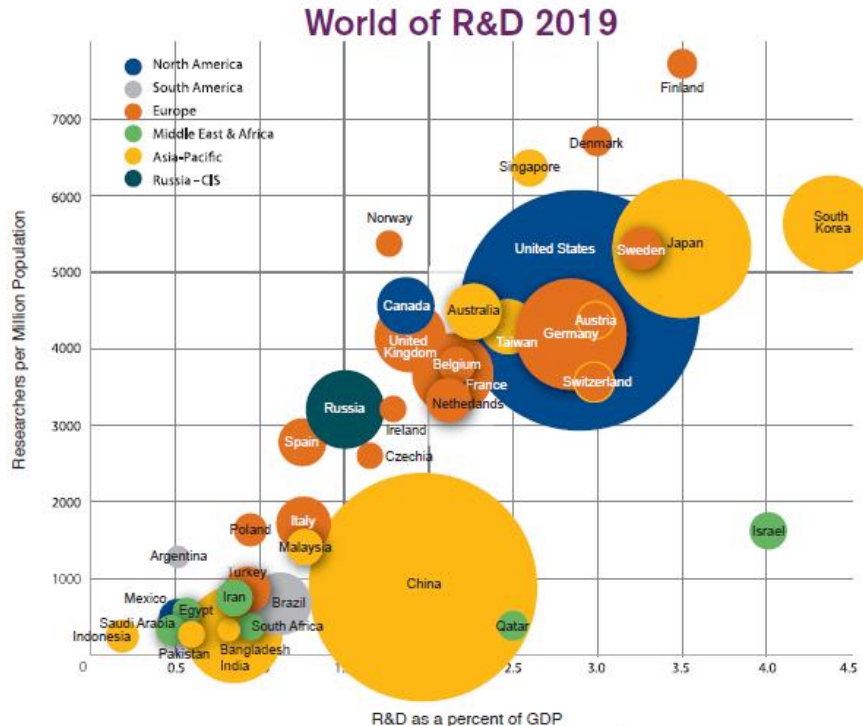


- Massachusetts (Universities)
- California (Universities)
- Pennsylvania (Universities)
- Georgia (Universities)
- New Jersey (Universities)
- Washington (Universities)
- Illinois (Universities)
- Arizona (Universities)
- North Carolina (Universities)
- Minnesota (Universities)
- Indiana (Universities)
- Ohio (Universities)
- Missouri (Universities)
- Nevada (Universities)
- Kansas (Universities)



Bubble size: Academic-Corporate Collaboration
Types of publications included: all.

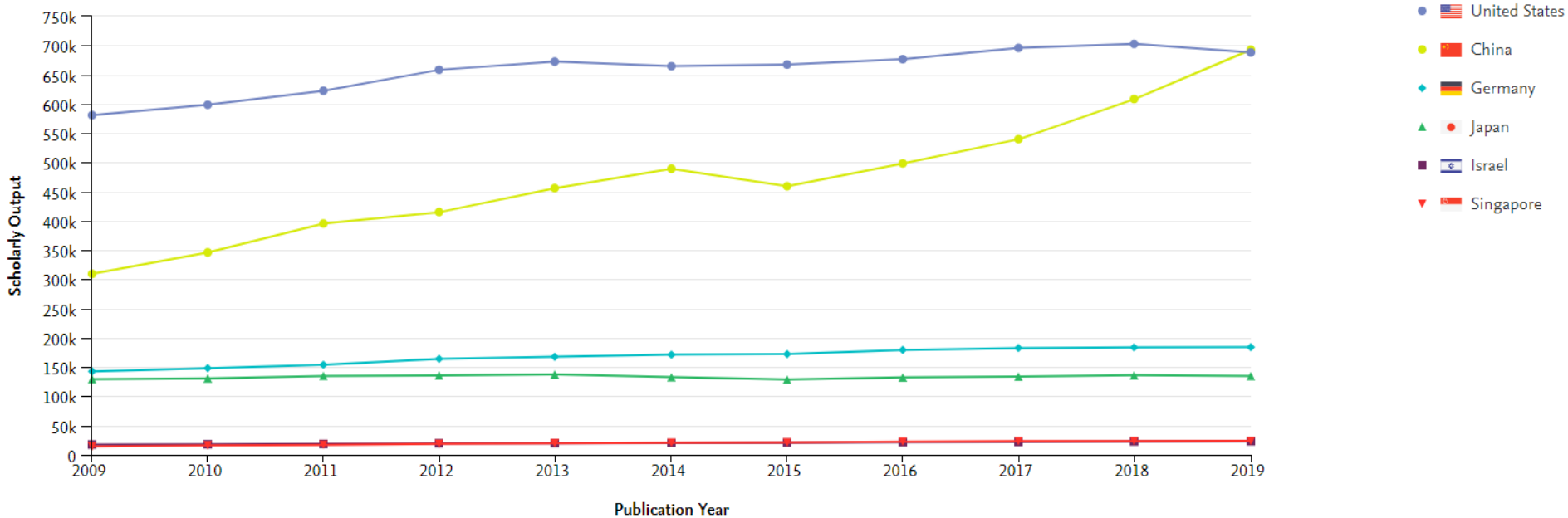
2018 Global R&D Expenditures (PPP USD)



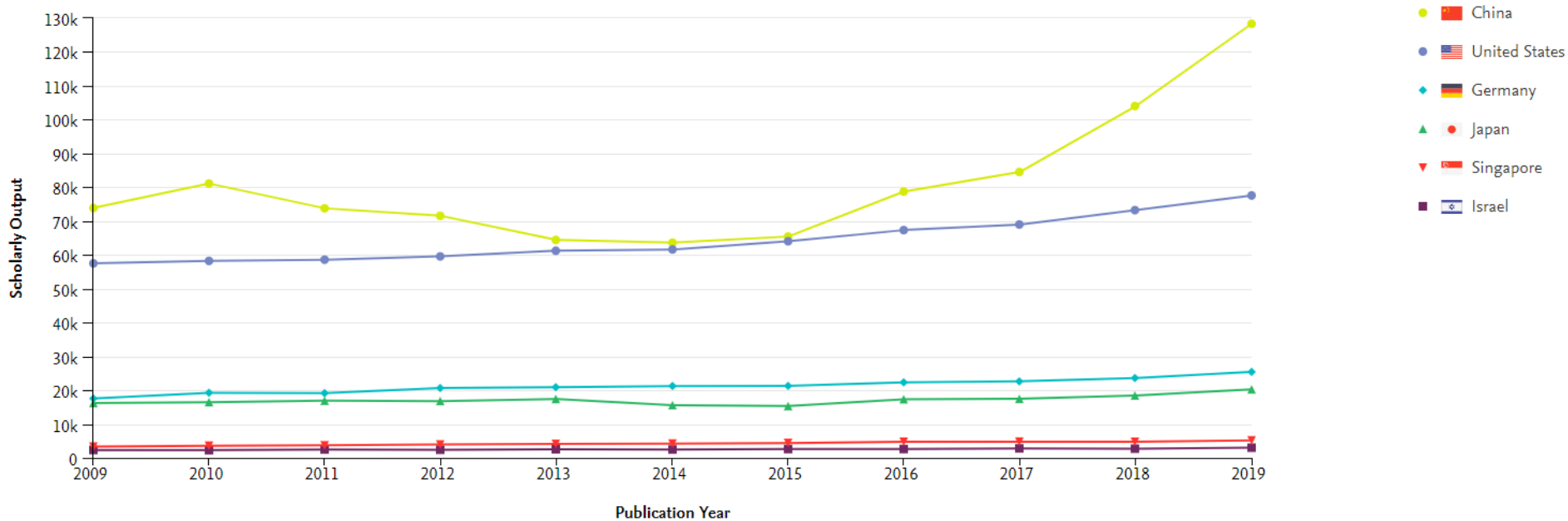
The size of the circles in this chart reflects the relative amount (compared to the U.S. as a baseline) of annual R&D investments by the indicated country. Regional groupings are indicated by the colors of the balls in the legend. The horizontal axis reflects R&D spending as a percent share of each country's GDP (gross domestic product). The vertical axis reflects on the number of researchers (including scientists and engineers) per million population for the respective countries.

- The world as a whole spent \$2.172T in R&D in 2018
- In 2016 South Korea spent \$90B, 4.3% of its GDP, on R&D.
- China's R&D vs. GDP, at 1.97%, has surpassed that of the EU as a whole (1.85%) and the UK (1.73%)
- No EU major EU economy except Germany (2.84%) is on track to spend the EU goal of 3.00% in 2020
- India's investments in R&D were the 5th-highest globally, surpassing South Korea's spending for the first time. In 2011 they were the 8th largest spender.
- US R&D spending in 2018 was up 5.2% over the prior year to \$565B, while China's spending rose 9.1% to \$485B

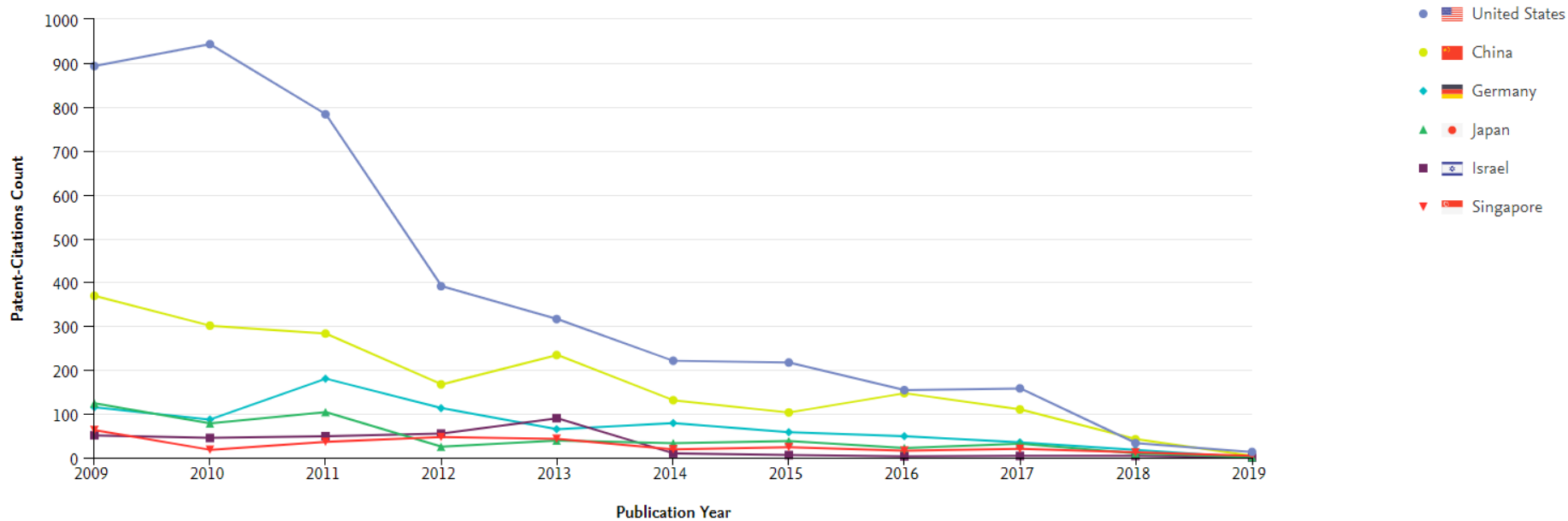
Scholarly Output 2009- 2019



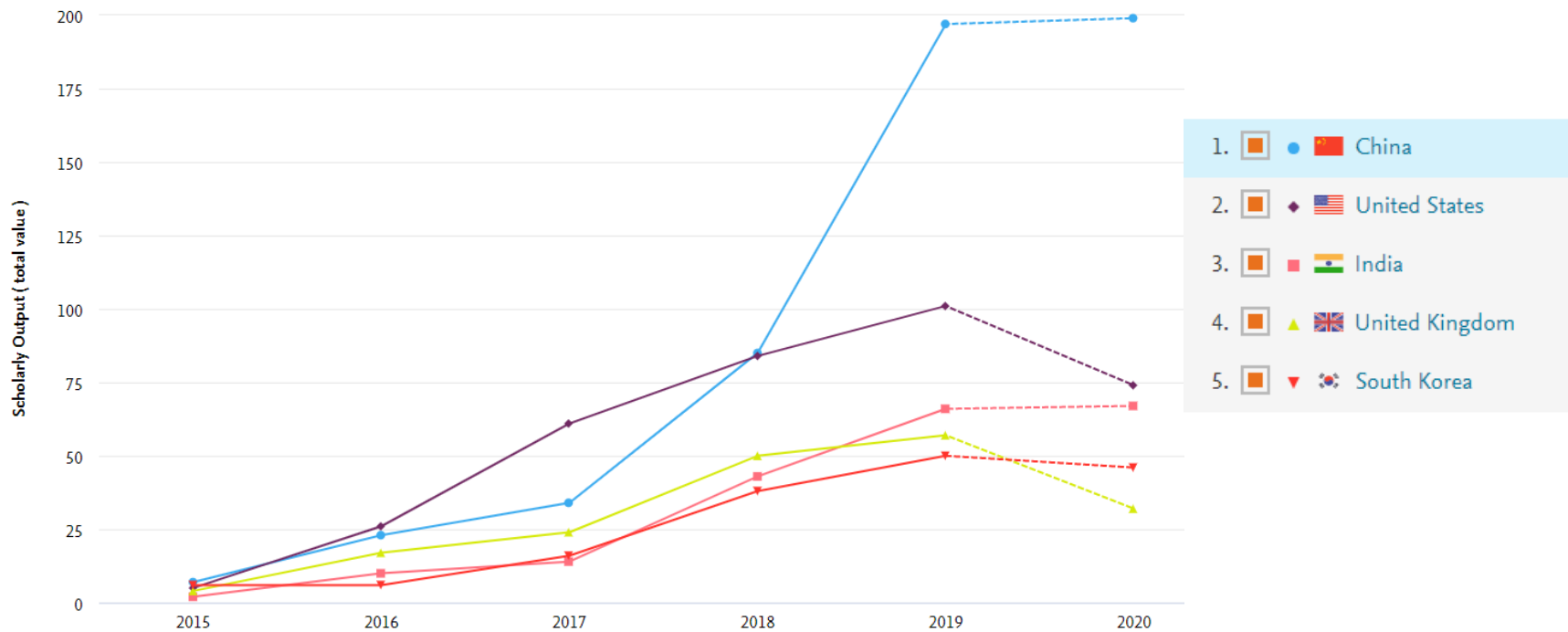
Computer Science Scholarly Output



Patent Citations – Artificial Intelligence



5G and IOT





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Thank you

