SUPPORTING THE INTELLIGENT ORGANIZATION

Using Dimensions to Evaluate Postgraduate Success of Texas A&M's PhD students in Research Careers

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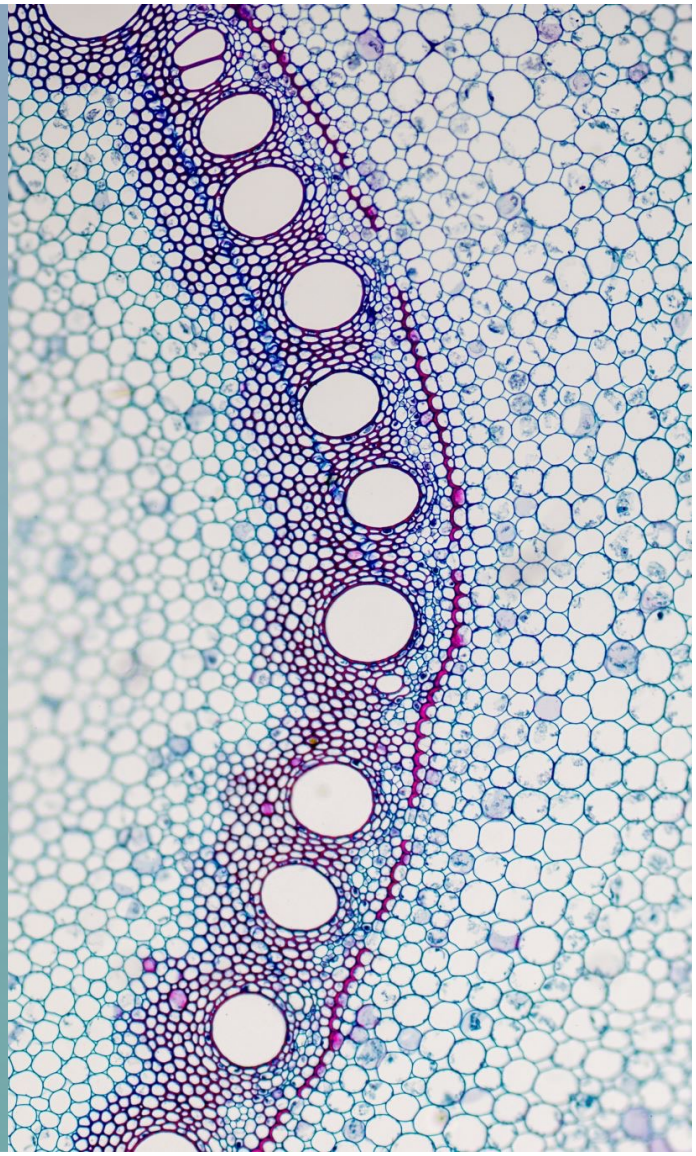
Office of Scholarly Communications (University Libraries)
Texas A&M University

Dimensions Webinar, May 18, 2021. Click here for the Recording.



Research at Texas A&M University

Land-Grant, Sea-Grant, &
Space-Grant Institution

128

Undergraduate Degree Programs

300

Graduate Degree Programs

- Member of the Association of American Universities (AAU)
- Colleges and Schools: **19**
- Master's degree programs: **200**
- Doctoral degree programs: **100**
- First professional degree programs: **5**
- Study Abroad: **5,330 students to 105 countries each year**
- Total Faculty: **3,750**
- National Academies Faculty: **19**
- Nobel Prize: **3**
- Wolf Prize: **3**
- Research expenditures*: **$905 million+ in FY2017**

** #16 nationally, National Science Foundation, 2015*

The Intelligent Organization

An **intelligent organization** is a learning **organization** that is skilled at creating, acquiring and transferring knowledge, and at modifying its behavior to reflect the new knowledge and insights (Garvin 1993).

http://choo.fis.utoronto.ca/fis/imio/IMIO1.html

(Re)Claiming The Narrative

"The personal statement … is your opportunity to make your own case. The statement communicates a quick sense of whether you know who you are, where you've been, and where you're going in your career."

Texas A&M Tenure & Promotion Guidelines

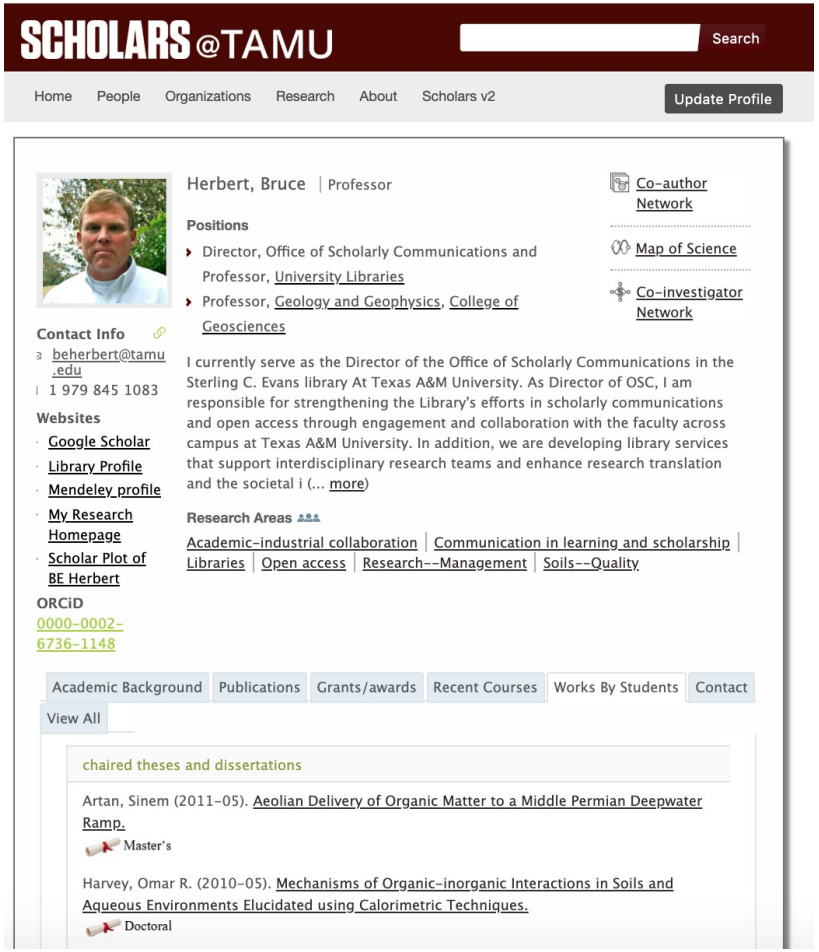
http://www.aaup.org/reports-and-publications/academe

OFFICE OF SCHOLARLY COMMUNICATION

Strategy: Interoperable Systems with Local & Global Data

Research Intelligence allows universities to assess research strengths and identify gaps so that actionable information is developed that can inform decision-making at each stage of the research lifecycle.

Research information management (RIM) systems, including VIVO – the Lyrasis open-source RIM, can be coupled with commercial software that support open standards to form an interoperable suite of systems that can meet emerging organizations needs.

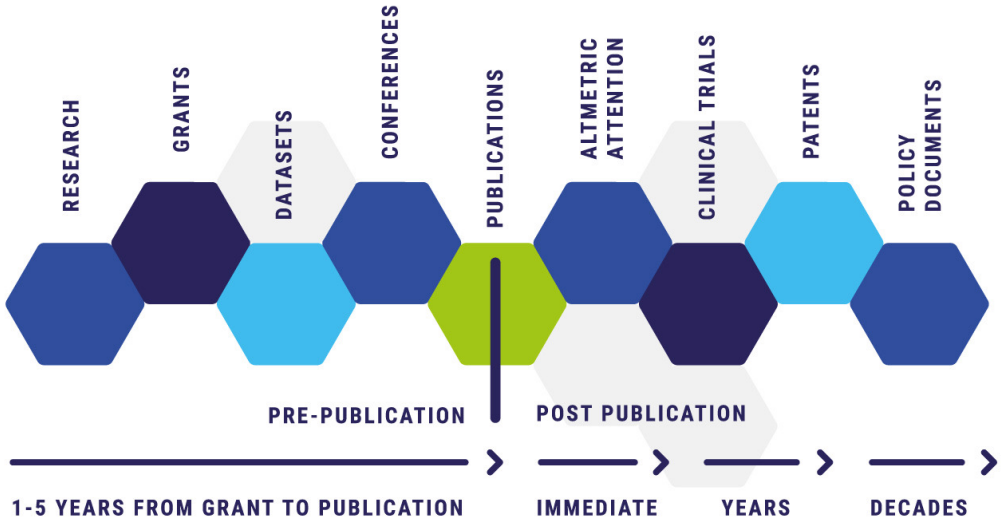


OFFICE OF SCHOLARLY COMMUNICATIONS

SCHOLARS@TAMU

Open Source, Open Community, Open Data

http://scholars.tamu.edu

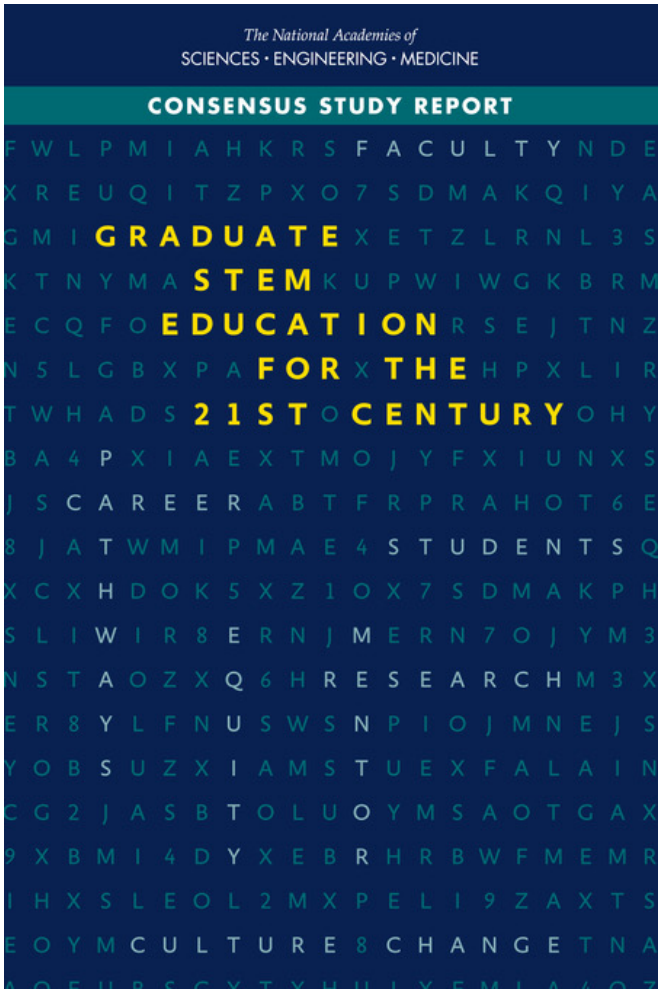


DIGITAL SCIENCE

DIMENSIONS

Linked Data
Fields of Research
Visualization & Analysis

https://www.dimensions.ai/



Graduate Education Assessment @ TAMU

The Office of Graduate and Professional Studies has expressed interest in identifying methods to assess graduate student success post-graduation.

National Academies of Sciences, Engineering, and Medicine. 2018. *Graduate STEM Education for the 21st Century*. Washington, DC: The National Academies Press. https://doi.org/10.17226/25038.

Examples of Transferable Skills in Graduate Education

- Adaptability: Ability to learn and adapt at a high level, self-confident, think quickly on your feet, and respond appropriately to large amounts of information.
- Communication: Ability to coherently organize material for others, facilitate discussions, speak up effectively, and share your voice.
- Inter-, Multi-disciplinarity: Training that crosses traditional boundaries between academic disciplines or schools of thought
- Networking & Collaboration: Ability to identify and bring together many individuals on the basis of common ideas or goals; develop partnerships
- Self-direction: Ability to work independently with minimal supervision, thrive in a competitive environment, perform effectively under pressure, self-motivate, and manage large, self-directed projects.

https://grad.msu.edu/phdcareers/career-support/skills

The Problem

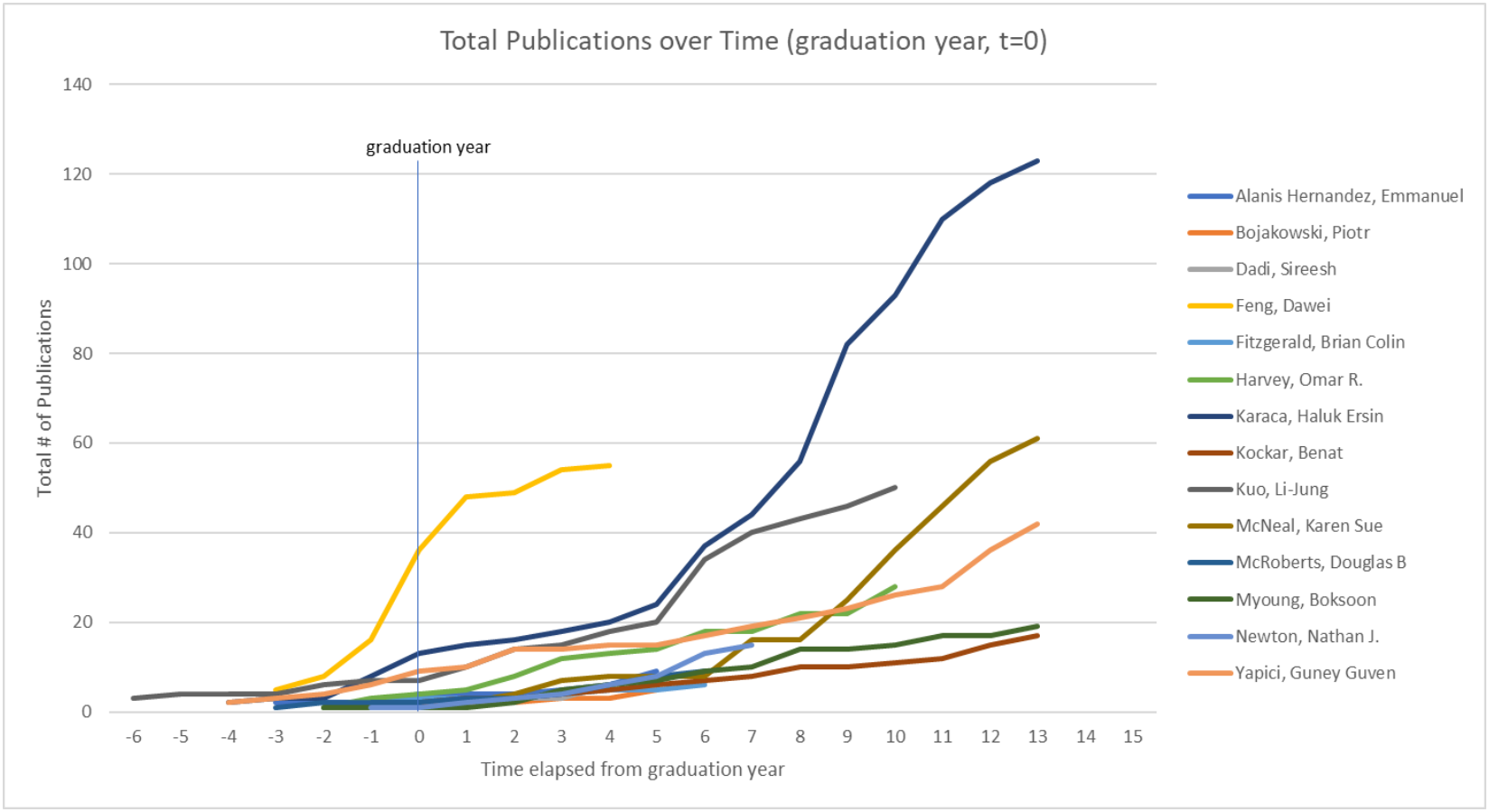
In our pilot study, we addressed the following questions:

- What is their publication history post-graduation? (Total number of pubs, average pubs/year)
- How did their research collaboration networks grow?
- What is the evolution/transition of research areas/topics before and after graduation? What are the trends in specializations (before and after graduation)?

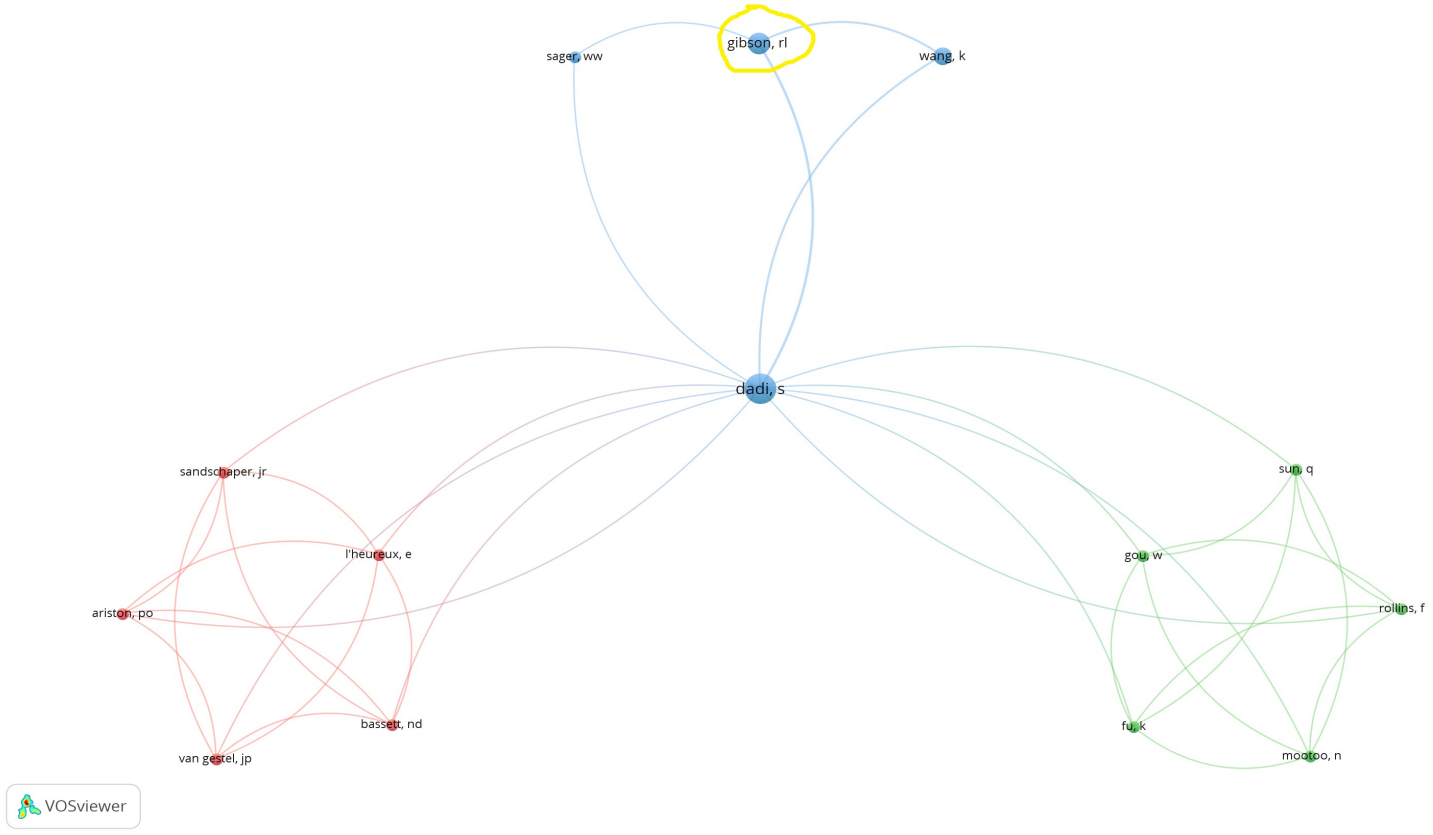
Demographic data for the students included in Pilot

Student	Dept	Advisor	Grad (Yr)	Committee (Dept)
Alanis Hernandez, E.	FINC	Johnson, Shane	2015	FINC, ACCT
Bojakowski, Piotr	ANTH	Hamilton, Donny	2012	ANTH, SCSC
Dadi, Sireesh	GEPL	Gibson, Richard	2014	GEOL, GEOP, PETE
Feng, Dawei	CHEM	Zhou, Hongcai	2015	CHEM, CHEN
Fitzgerald, Brian	ACCT	Wolfe, Christopher	2014	ACCT?, EPSY
Harvey, Omar R.	GEPL	Herbert, Bruce	2010	OCNG, CVEN, SCSC
Karaca, Haluk Ersin	MECH	Karaman, Ibrahim	2007	MSEN, AERO
Kockar, Benat	MECH	Karaman, Ibrahim	2007	MECH, AERO, MSEN
Kuo, Li-Jung	GEPL	Herbert, Bruce	2009	GEOL, OCNG
McNeal, Karen	GEPL	Herbert, Bruce	2007	GEOL, OCNG, MATH (Ed)
McRoberts, Douglas	ATMO	Nielsen-Gammon, J	2014	ATMO, GEOG
Myoung, Boksoon	ATMO	Nielsen-Gammon, J	2007	ATMO
Newton, Nathan J.	ACCT	Wang, Dechun	2013	ACCT, FINC
Yapici, Guney Guven	MECH	Karaman, Ibrahim	2007	MSEN
Zhu, Xiaojie	ATMO	Saravanan, R	2013	OCNG, ATMO

Publications Trends



Collaboration Networks: 5-10 Years After PhD



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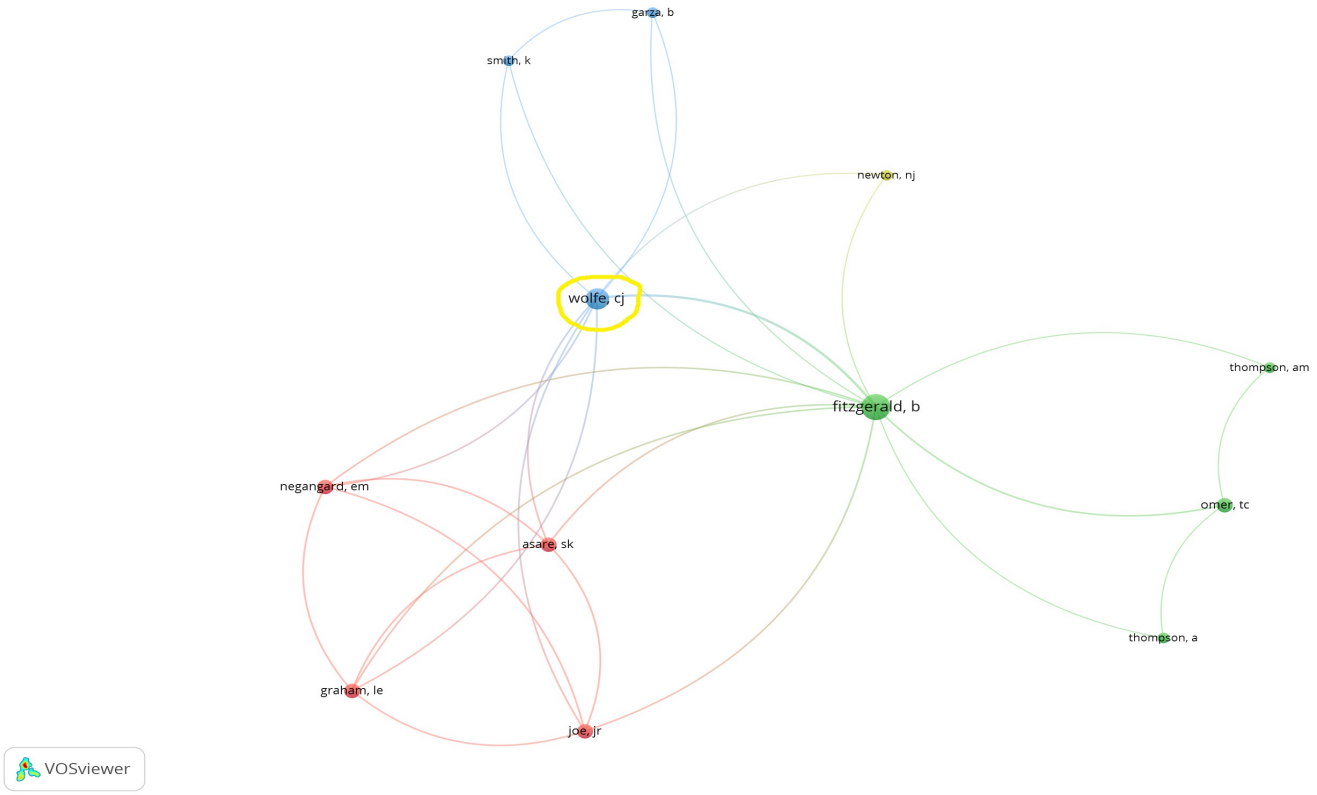
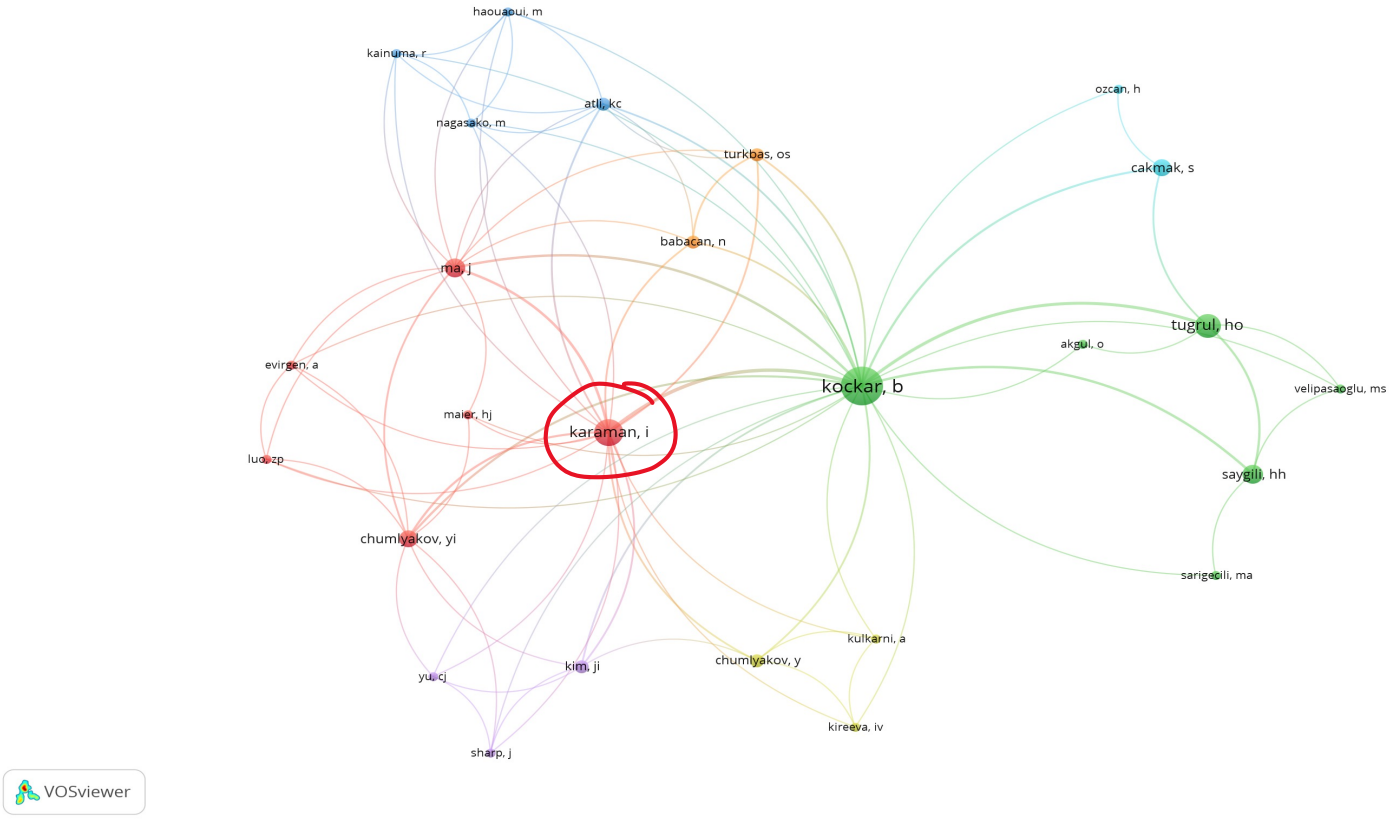


Collaboration Networks: More than 10 Years After PhD



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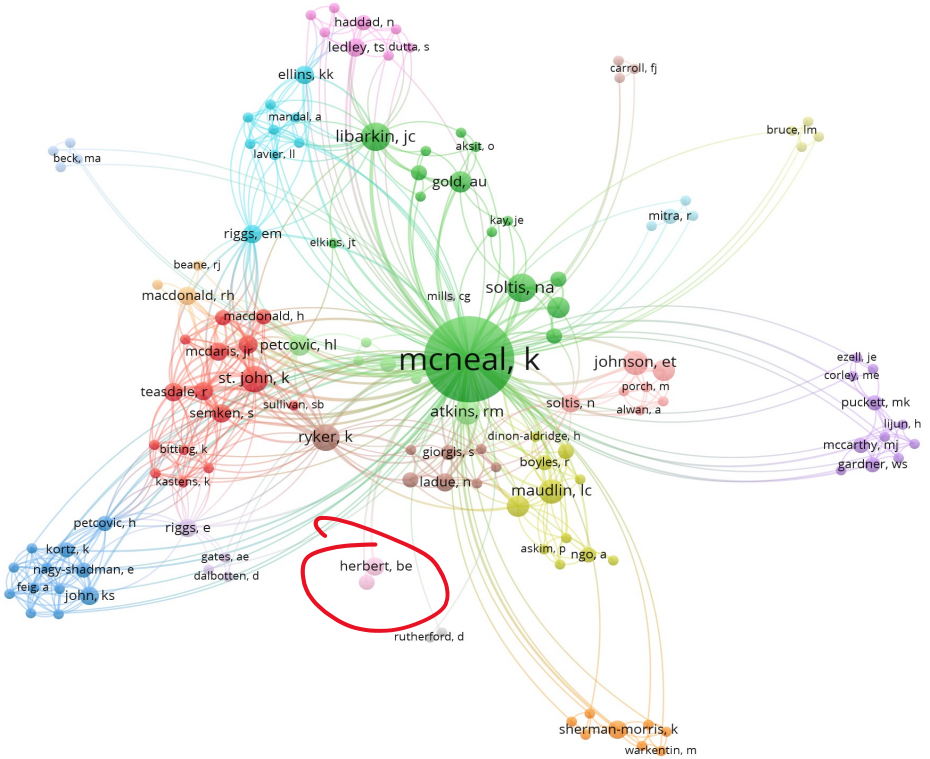

Specialization for the students included in Pilot

Student	Total Pubs	Pubs/Yr (1st pub yr)	PhD Specialization	Current Specialization*
Alanis Hernandez, E.	9	1.1 (2012)	FINC	Finance and economics (A)
Bojakowski, Piotr	5	.6 (2011)	ANTH	Underwater archaeology (G)
Dadi, Sireesh	6	1.2 (2015)	GEOP	Business intelligence (I)
Feng, Dawei	55	6.9 (2012)	CHEM	Materials science and engineering (A)
Fitzgerald, Brian	6	0.8 (2012)	ACCT	Accounting (A)
Harvey, Omar R.	28	2.3 (2008)	WMHS	Geological sciences (A)
Karaca, Haluk Ersin	123	7.2 (2003)	MECH	Mechanical engineering (A)
Kockar, Benat	17	1.2 (2006)	MECH	Mechanical engineering (A)
Kuo, Li-Jung	50	2.4 (1999)	GEOL	Environmental Biogeochemistry and Bioenergy (G)
McNeal, Karen	61	5.1 (2008)	GEOL	Geosciences (A)
McRoberts, Douglas	9	1 (2011)	ATMO	Data science (A)
Myoung, Boksoon	19	1.3 (2005)	ATMO	Climate analysis (G)
Newton, Nathan J.	15	1.9 (2012)	ACCT	Accounting (A)
Yapici, Guney Guven	42	2.5 (2003)	MECH	Mechanical engineering (A)
Zhu, Xiaojie	2	1 (2014)	ATMO	Statistics (A)

Specialization for the students included in Pilot

Name	PhD	PhD Research		Post-graduation
		Topic analysis	Submitted Keywords	
Kuo, Li-Jung	2009	- Combustion products source - Environmental media - Environmental application - Multi-proxy approach - Pyrogenic carbon	- black carbon - char - charcoal - levoglucosan - lignin - soil organic matter - PAHs - Puget Sound - Hood Canal - climate change	- PBDES - BDE - Biochar - Seawater - Amidoxime
McNeal, Karen	2007	- complex earth system - microbial ecosystem proxy - coastal eutrophication	- Volatile Organic Compounds - Biomarkers - Spatial and Temporal Dynamics - Microbial Community - Inquiry - Multiple Representations - Complex Earth Systems - Conceptual Model Development - Undergraduate Students	- Geoscience - Climate change - Risk perception - Climate science - Geoscience education research - Student engagement

Software

Data Sources:

- Scholars@TAMU (VIVO)
- OAK Trust (Dspace)
- Dimensions

Visualization & Analysis

- Dimensions
- VOS Viewer

Final Thoughts

- Graduate student outcomes can likely be linked to graduate program characteristics
- This study focused on publications. Other scholarly activities that could potentially be used:
  - Patents
  - Grants
  - Policy documents
  - Clinical trials (health industry)
- This could be automated by utilizing the Dimensions API

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