

DIGITAL TOOLS FOR COLLABORATIVE RESEARCH

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Collaboration in Research

“In the Gulf states, we have scarcity of water and rain. Universities within the same region could work on water desalination projects and issues related to marine environment and marine pollution because of the oil tankers in an enclosed sea mass such as the Gulf. How can regional universities work together towards solving a common challenge or problem?”

Dr. Hassan Rashid Al-Derham, President of Qatar University

Collaboration in Research

Types of Collaboration

- i. **Networks and interest Groups**
- ii. **Shared document creation**
- iii. **Collaborative Information Creation and Sharing**
- iiii. **Communication**

Why Collaborate in Research

- i. **Pooling of Equipment**
- ii. **Sharing of Knowledge , skills & Techniques**
- iii. **Source of Creativity**
- iiii. **Greater Scientific Visibility**
- v. **Intellectual Visibility /Expanded network**
- vi. **Team Work Skills (Social & Management)**

Communication

Virtual Meetings, Email, Instant Messaging, Screen Sharing, Blogs, Voice/Video/Web Conferencing, Discussion Boards



So how do Digital tools help our Collaboration Efforts as Africa

EXPLORE LITERATURE



- Tools that allow researchers to explore research articles available to date
- Article visualization tools that enhance your reading experience i.e. navigating from a paper to another
- Examples: Mendeley & Biohunter

Research Activities

The Home of Data Science & Machine Learning
Kaggle helps you learn, work, and play

What's Kaggle?

Create an account or Host a competition

Competitions > Climb the world's most elite machine learning leaderboards
Want to host a competition?

Datasets > Explore and analyze a collection of high quality public datasets

Kernels > Run code in the cloud and receive community feedback on your work

FIND, SHARE DATA & CODE

- Tools to Manage large sets of data and programming code.
- Tools to help share and store data and code
- Examples: Databank
- Analysis and visualization tool that contains collections of time series data on a variety of topics

Mendeley

Reference Management Research Network Datasets Careers Funding

Empowering researchers to store and share their data

Create a free account

Reference management: Read, organize and cite all of your research from one library.

Research network: Connect and collaborate with millions of researchers worldwide.

Datasets: Store, share and cite your datasets with one secure online repository.

Careers: Search for science and technology jobs in institutions worldwide.

CONNECT WITH OTHERS



- Need to help out in the community
- Researchers reach out to other researcher and find expertise for new collaborations.

THE WORLD BANK

Home About Data Research Learning News Projects & Operations Publications Countries Topics English

DataBank

Explore. Create. Share: Development Data

DataBank is an analysis and visualisation tool that contains collections of time series data on a variety of topics. You can create your own queries; generate tables, charts, and maps; and easily save, embed, and share them. Watch the tutorial and read the FAQs. Enjoy using DataBank and let us know what you think!

WHAT'S POPULAR: INDICATORS COUNTRIES

GDP growth (annual %)

GDP (current US\$)

GDP per capita (current US\$)

GNI per capita, Atlas method (current US\$)

Exports of goods and services (% of GDP)

Foreign direct investment, net inflows

WRITE



Tools that adapt to the needs of researchers
Reference management
Collaborative writing across labs and continents
keeping track of modifications and contributions done by others .eg Labguru



PUBLISH



Open Access Platforms
Paper Repositories
Examples:
GigaScience
eLife
ScienceOpen

labguru



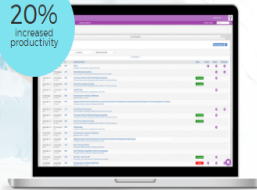
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How many people are working in your labs?



5-20 Scientists



21-200 Scientists



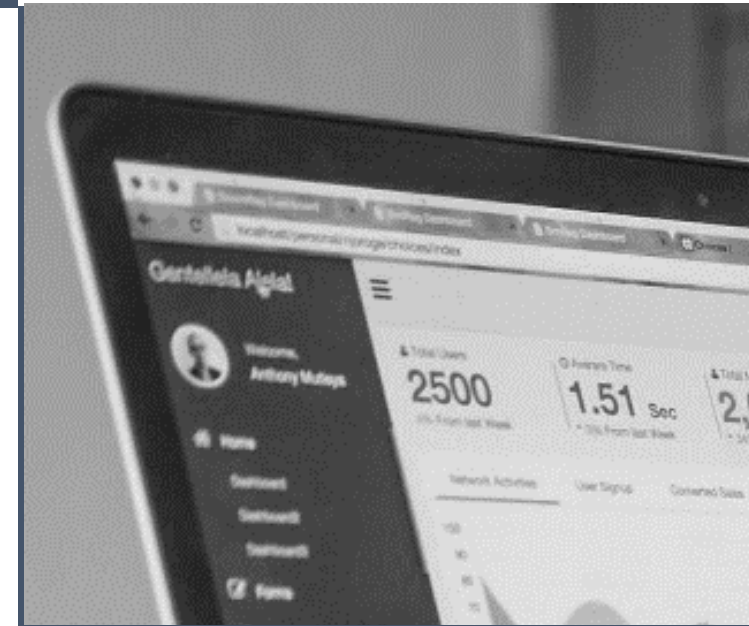
200+ Scientists

Contact information

EVALUATE RESEARCH



Tools that analyse the impact of one's research.
New tools that analyze the impact of your work by other means other than impact factor and citations counts.





VIRTUAL ENVIRONMENTS



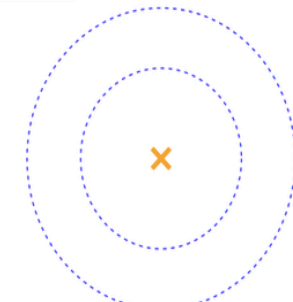
Example Experiments

- Image Processing Tasks
- CPU Design
- Memory design
- Networking Experiments
- Automotive product development



Building an Atom

Protons:
Neutrons:
Electrons:



Element:

H	He																	Ne																
Li	Be	B	C	N	O	F	Ne																	Ar										
Na	Mg	Al	Si	P	S	Cl	Ar																	Kr										
K	Ca	Sc	Ti	V	Cr	Mn	Fe	Co	Ni	Cu	Zn	Ga	Ge	As	Se	Br	Kr																	Xe
Rb	Sr	Y	Zr	Nb	Mo	Tc	Ru	Rh	Pd	Ag	Cd	In	Sn	Sb	Te	I	Xe																	Rn
Cs	Ba	La	Ce	Pr	Nd	Pm	Sm	Eu	Gd	Tb	Dy	Ho	Er	Tm	Yb	Lu	Rn																	Og






Net Charge:

Mass Number:

Model:
 Orbits
 Cloud

Show
 Element Name
 Neutral/Ion
 Stable/Unstable

Protons Neutrons Electrons

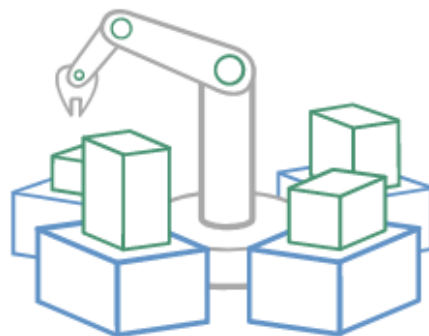
Build an Atom     





1 DESIGN

Ship your samples to Emerald, then design your experiments over the web using our software



2 EXECUTE

Emerald conducts your experiments in an automated lab exactly as you specified



3 EXPLORE

Emerald organizes your data into a database on the cloud which you can access from anywhere



4 ANALYZE

Ship samples back to your lab and analyze your results using our extensive data analysis suite

Collaboration efforts in Africa:

Web based research performance measurement tools.

PARTICIPANTS

Demonstrate the impact and importance of institutional research output.

Simplify the presentation of research performance over time and across scientific fields, focusing on specific topical areas or research thrusts.

Pinpoint topical strengths.

Identify leading researchers and institutions in each area.

Optimize funding allocations.

Assist in recruitment processes and research collaboration decisions.

1. **University of the Witwatersrand**
2. **University of Cape Town**
3. **University of Pretoria**
4. **Makerere University, Uganda**
5. **University of Ghana**



THANK YOU