

Interactive, web-based visualization of scientific collaboration networks

Ben Leone, Ryuichi Ohhata, Lukas Rosario

Jinyu Tian, Angela Vellante

Mentors:

- Eric Kolaczyk (Hariri Institute, Director)
- Arezoo Sadeghi (SAIL)
- Margot Menestrot from Red Hat UX team
- Joe Farmer (BU Office of Research, Program Manager & Data Analyst)
- Jonathan Chamberlin



Demo 4 Feedback

- Where is the D3 code for the visualization?
- For the docker file, it looks like you are just running things on your local machines, have you started working on openshift environment at all?
- Integration of visualization in WordPress

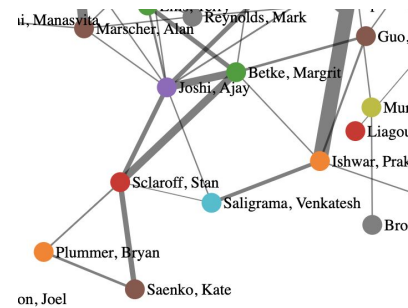
Visualization features

- Each **node** represents an individual person of the Hariri Institute.
- Hovering** your mouse over the **node** will increase the size
- A **link** between two nodes represents a direct collaboration; the **thicker** the link, the greater the number of collaborations between them.

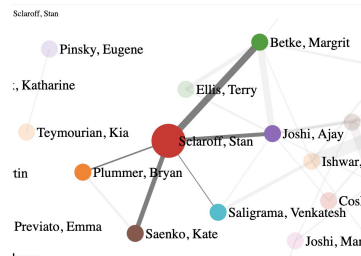
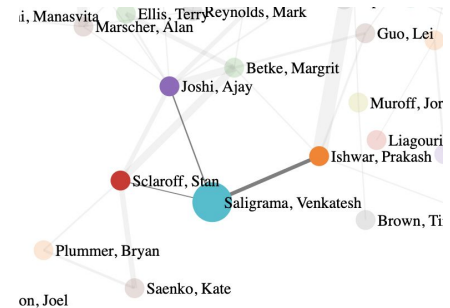


- Clicking** on a **node** will display the person's name and isolate direct links.

Before click:



After click:



Setbacks

- Creating a persistent storage database in case it goes down
- Connecting the PosgreSQL database to the hosted API on OpenShift

APPLICATION

postgresql-ephemeral <http://postgresql-ece-528-interactive-web-visualization.k-apps.osh.massopen.cloud>

> | DEPLOYMENT CONFIG **postgresql, #1** 1 pod ⋮

APPLICATION

postgresql-persistent <http://testsql-ece-528-interactive-web-visualization.k-apps.osh.massopen.cloud>

> | DEPLOYMENT CONFIG **testsql** ✖ 1 Error No deployments for testsql ⋮

Setbacks

- Connecting to database using GUI (i.e. pgAdmin) to upload the data to be used by the API
- [Port forwarding](#) did not expose the database to the service

API

RestAPI hosted on OpenShift cloud using docker container

Python

Information

Configuration

Results

1

2

3

* Add to Project

Interactive, web-based visualization of scientific collaboration networks

Version

3.6 — latest

* Application Name

api-flask

* Git Repository

https://github.com/BU-CLOUD-F20/Interactive_Web_Visualization

[Try Sample Repository ↗](#)

If you have a private Git repository or need to change application defaults, view [advanced options](#).

Cancel

< Back

Create

API

API retrieves data from PostgreSQL by applying the credentials, and:

- Displays affiliate information
- Lists number of collaboration between each affiliates

URL:

<http://api-flask-ece-528-interactive-web-visualization.k-apps.osh.massopen.cloud/api/v1/relations>

API

```
▶ nodes:      [...]
▼ links:
  ▼ 0:
    source:    3
    target:    6
    value:     2
```

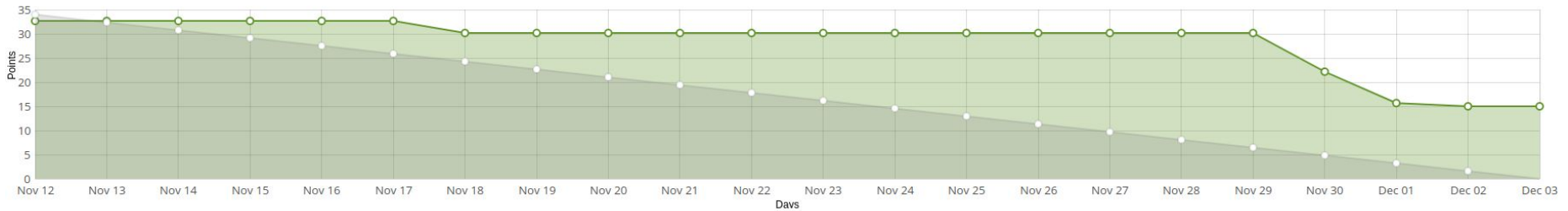
Source: Affiliate 1
Target: Affiliate 2
Value: How many collaborated papers

```
▼ nodes:
  ▶ 0:      {}
  ▶ 1:      {}
  ▶ 2:      {}
  ▼ 3:
    id:      "Smith, Adam"
    department: "Computer Science"
    college:  "College of Arts and Sciences"
    email:    "ads22@bu.edu"
    ▶ interests: "Computability and Comput...preserving Computation"
    ▶ domains:  "Computational Social and Society, Ethics, and Law"
  ▶ 4:      {}
  ▶ 5:      {}
```

```
▼ 6:
  id:      "Becker, Alexander"
  department: "Administrative Sciences"
  college:  "Metropolitan College"
  email:    "apbecker@bu.edu"
  ▶ interests: "Computational Logic and ...raphy and Cryptosystems"
  ▶ domains:  "Computational Finance an... and Political Sciences"
  ▶ 7:      {}
  ▶ 8:      {}
```


Demo

Taiga Burndown Chart



Flat holiday burndown but progress during our final week of development

Wrapping up

Dec 8:

- Resolve remote database issues with OpenShift and connect to API
- Refine visualization for best UI/UX
 - Search/filter
 - Displaying emails and other info.
 - Department key color
 - Legend
- Finalize documentation on how to upload data to our database after the end of the project

Thank you!
Questions?