

GRNsight Database

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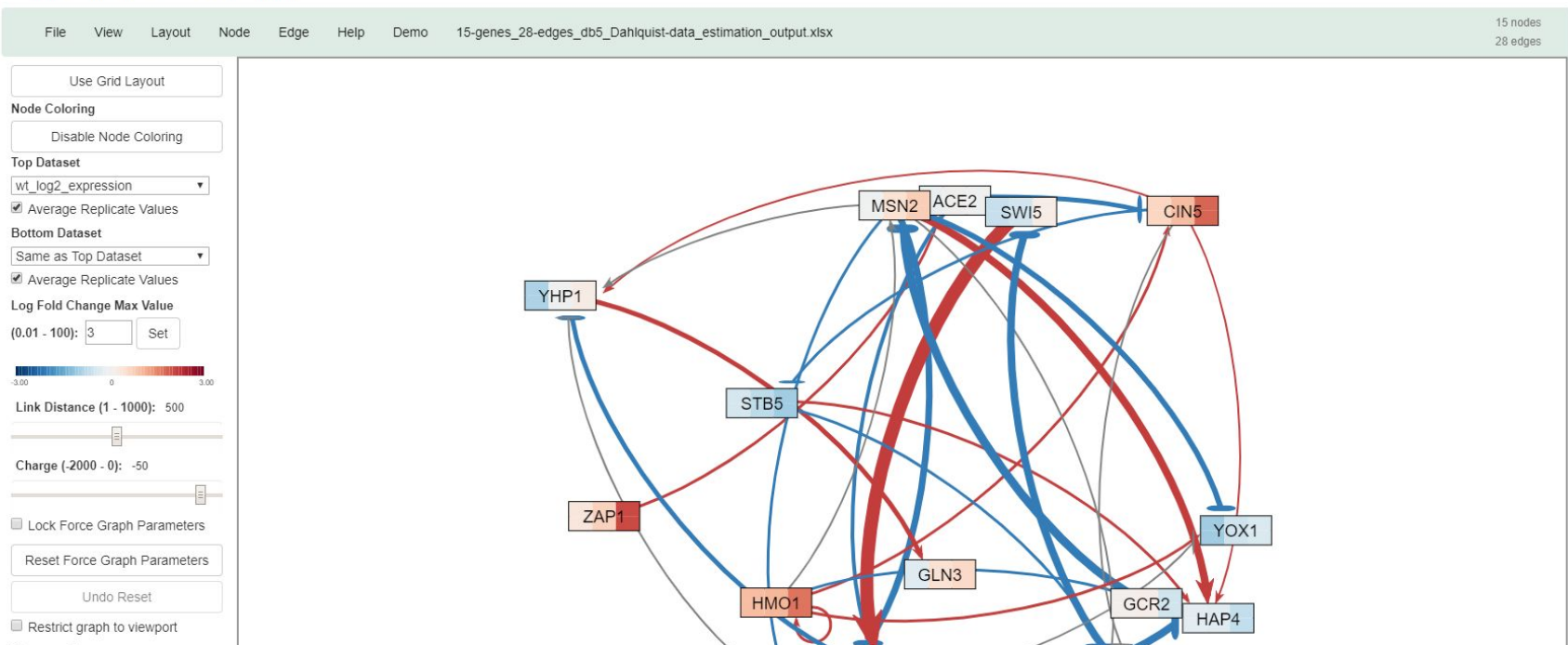
GRNsight Overview

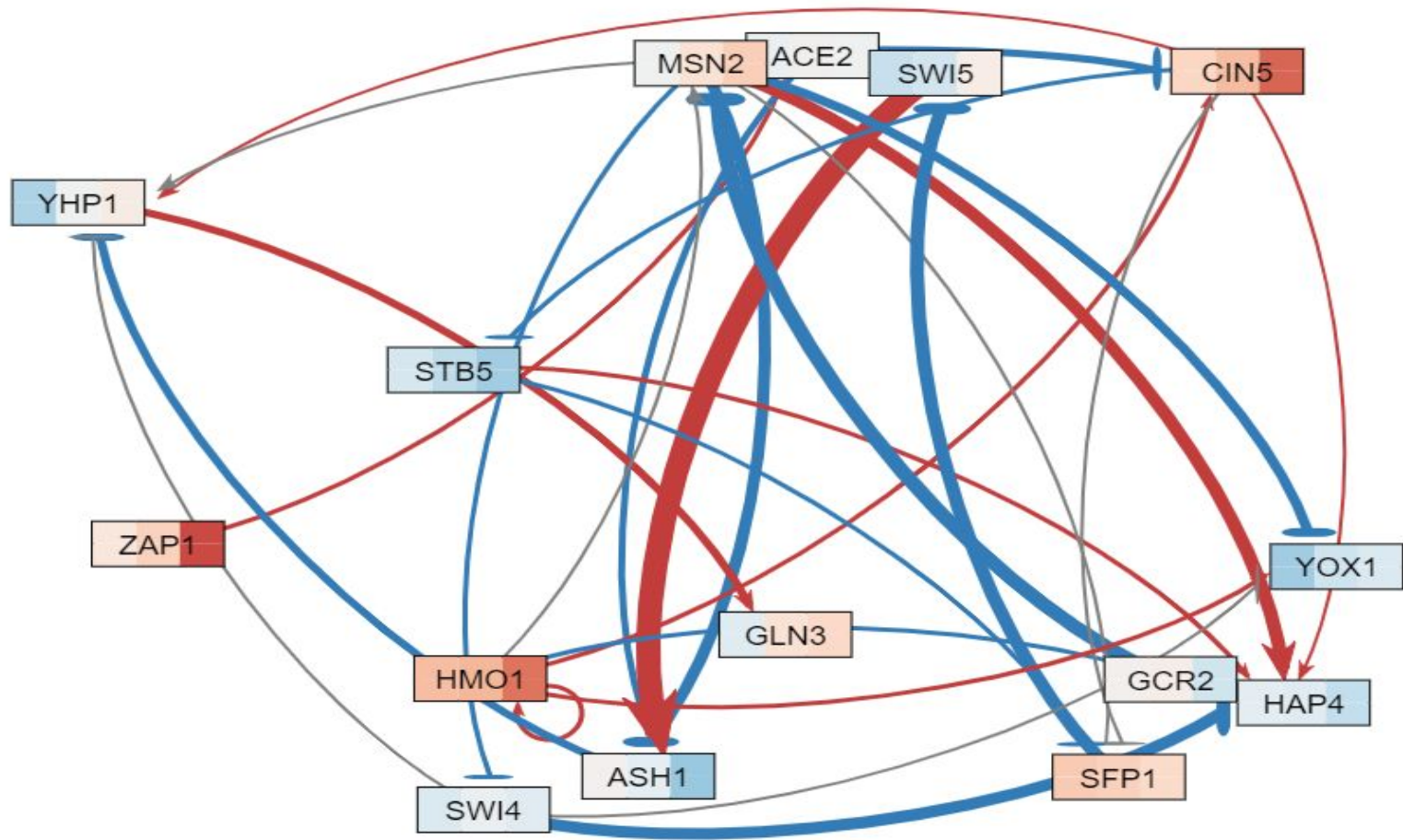
- An application that allows users to better visualize the connections in gene regulatory networks
- Uses spreadsheets of data that show the connections
- Node/connection coloring shows how strongly and in what way genes affect each other
 - Coloring is based on expression data



GRNsight v4.0.0

Welcome to GRNsight. Please select a file to upload.





Network Data

	A	B	C	D	E	F	G	H	I	J
1	cols regulators	ACE2	ASH1	CIN5	GCR2	GLN3	HAP4	HMO1	MSN2	SFP1
2	ACE2	0	0	0	0	0	0	0	0	0
3	ASH1	1	0	0	0	0	0	0	1	0
4	CIN5	0	0	0	0	0	0	1	1	0
5	GCR2	0	0	0	0	0	0	0	0	0
6	GLN3	0	0	0	0	0	0	0	0	0
7	HAP4	0	0	1	0	0	0	1	1	0
8	HMO1	0	0	0	0	0	0	1	0	0
9	MSN2	0	0	0	1	0	0	1	0	0
10	SFP1	0	0	1	0	0	0	0	1	0
11	STB5	0	0	1	0	0	0	0	0	0

Expression Data

	A	B	C	D	E	F
1	id	15	15	30	60	60
2	ACE2	0.6139	-1.0689	0.3377	0.817	0.5566
3	ASH1	0.97	0.3043	-0.7236	-1.3477	-1.0468
4	ZAP1	0.6594	0.6135	-0.394	2.9606	3.5569

Project Description

- Design, implement, and connect a database
 - AWS RDS
- Interface so that users can choose which data they want displayed
 - Node JS
- Data export functionality
 - Node JS
- Target audience: students, professors, researchers
- Will allow users to utilize existing data instead of having to upload their own sheet

User's POV

- Relational database
 - expression tables that hold the expression data from lab, along with other published data
 - some metadata tables that describe the other data
 - a degradation rates table with degradation rates
 - a production rates table with initial guesses for production rates
- Interface
 - Select genes to display
 - Data display, both in GRN diagram and in spreadsheet forms
 - Option to export data

Why I'm Interested

- I have worked on this project for a year
- Worked with expression data
- Interdisciplinary
- Applications to research
- Applies skills from Databases, Interaction Design, CMSI 401
- Using web services again!

Questions?