

# GAUSSI: Generating, Analyzing, & Understanding Sensory and Sequencing Information

## A Trans-Disciplinary Graduate Training Program in Computational Biology

### Leadership



Tom Chen (PI)



Carol Wilusz (Co-PI)



Asa Ben-Hur (Co-PI)

### Career Development

#### Personal career counseling with Dr. Rich Feller

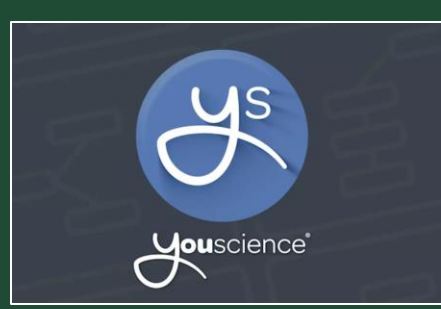


Rich Feller, PhD is an internationally known speaker and professional counselor. More can be learned about his program, assessments, and resources at [richfeller.com](http://richfeller.com)

#### Program Objectives



Knowell™ Card Sorts



YouScience® Aptitude and Interests Test

Support self-awareness to improve communication and team development

GAUSSI students A. Belk, D. Dean, J. Rodriguez-Ramos, K. Scott, S. Williams, J. Luxton play the **Who You Are Matters!** game to facilitate personal and community development



Collaborate with industrial partners to mentor and promote career planning

Support transition from graduate school

### GAUSSI Mission Statement

*Preparing the students of today for the analytical challenges and opportunities of tomorrow*

### Curriculum

All modules are 1-2 credits and are discipline-specific

#### Math Courses

Linear Algebra for Biologists  
Topological Data Analysis

#### Biology Courses

Protein Basics for Non-Biologists  
Basic Microbiology for Non-Biologists  
Nucleic Acids For Non Life Scientists

#### Biosensing Courses

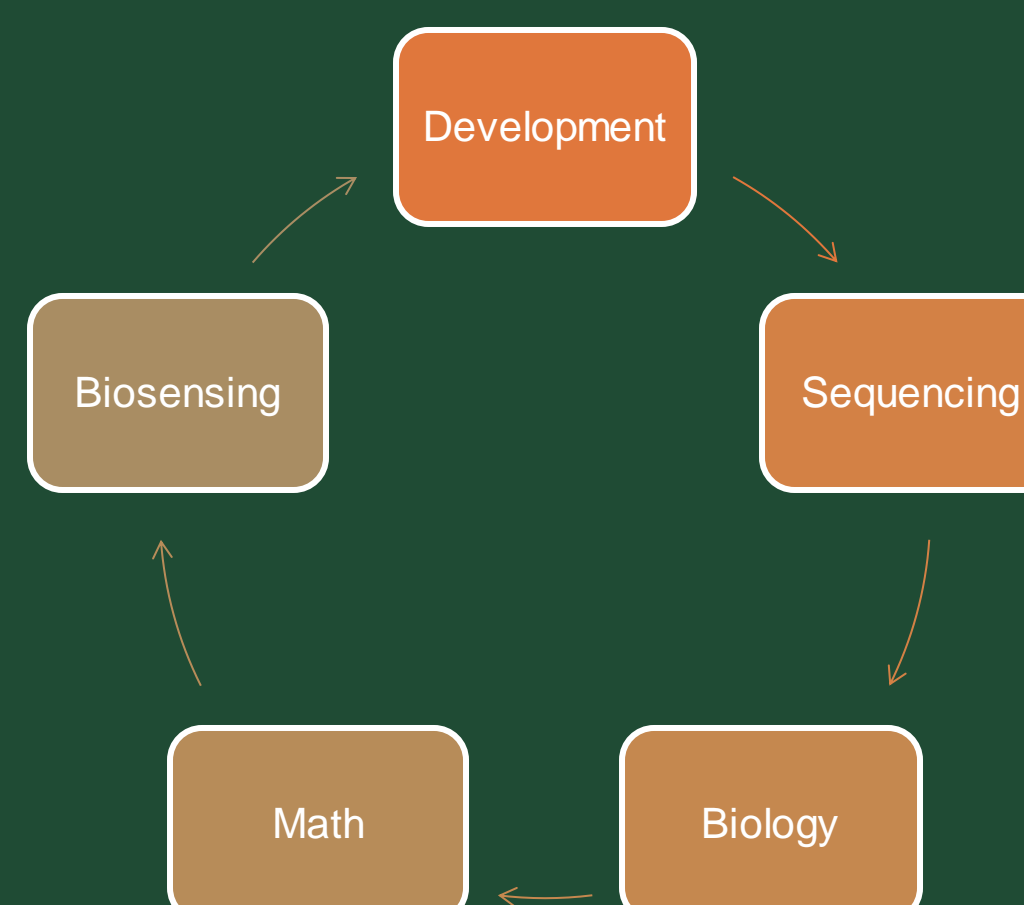
Cells as Circuits  
Sensor Circuit Fundamentals  
Electrochemical Sensors  
Signal and Noise in Biosensors  
Affinity Sensors  
Biophotonic Sensors with Reflective Index

#### Professional Development Courses

(required for all students)  
Ethics of Big Data  
STEM Communication

#### Sequencing Courses

LINUX as a Computational Platform  
RNA-SEQ Data Analysis  
Genomics Data Analysis  
Metabolomics: Detection and Data Analysis  
Microbial Genomics Data Analysis  
Analysis of Sequencing Data  
Next Generation Sequencing Platforms



### GAUSSI Goals

Flexible & accessible curriculum of modular courses to train graduate students from a variety of disciplines in the approaches used to generate, analyze, and understand large biological datasets

Facilitate exploration of non-academic career paths

Provide opportunities to recognize and practice the skills required for success in academia and industry

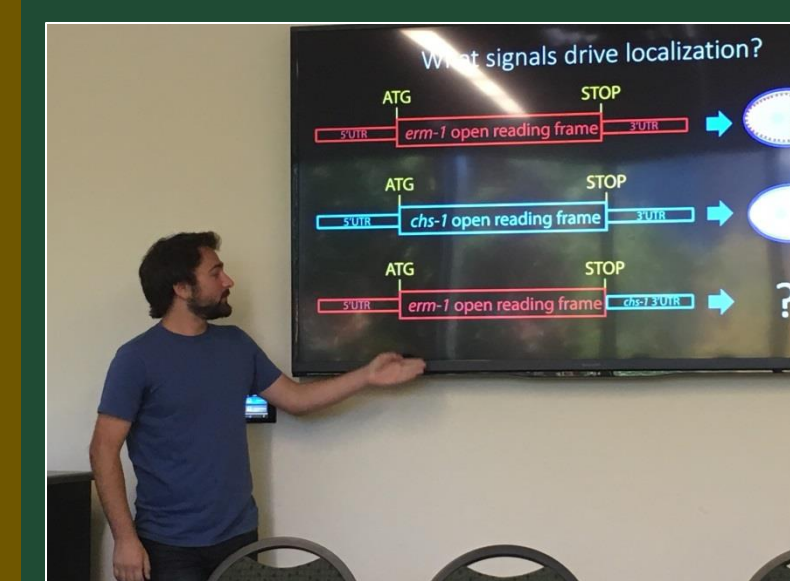
Introduce the public and K-12 students to concepts in big data science through outreach activities

Stimulate collaborative research in the areas of biosensing, and computational & systems biology

### Communication and Outreach

#### Science Communication Training

Research presentations



Dylan Parker presents his research at a GAUSSI meeting

Poster symposiums



2017 GAUSSI symposium

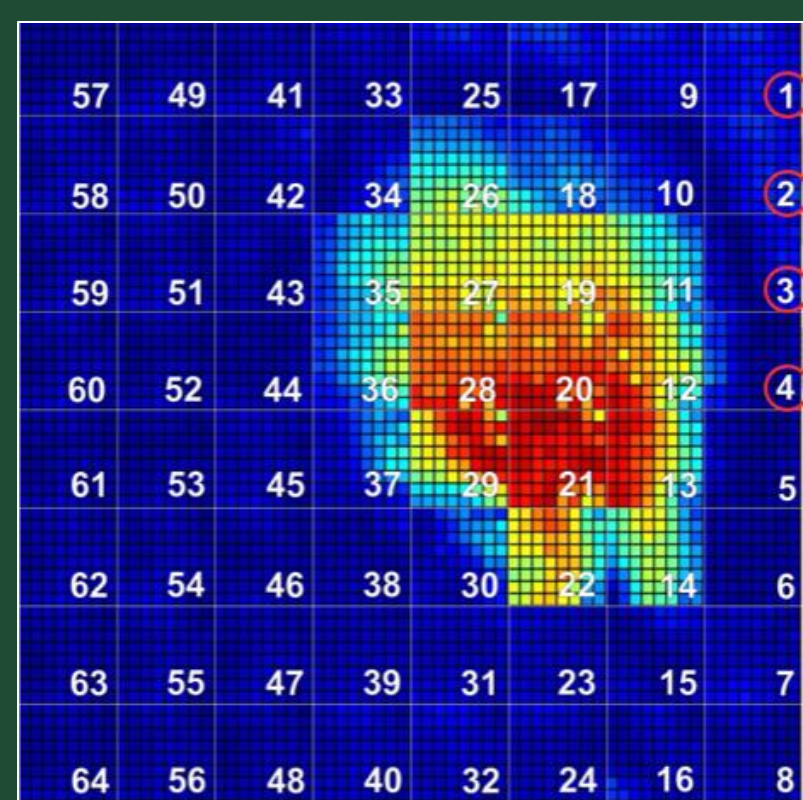
5 minutes of science



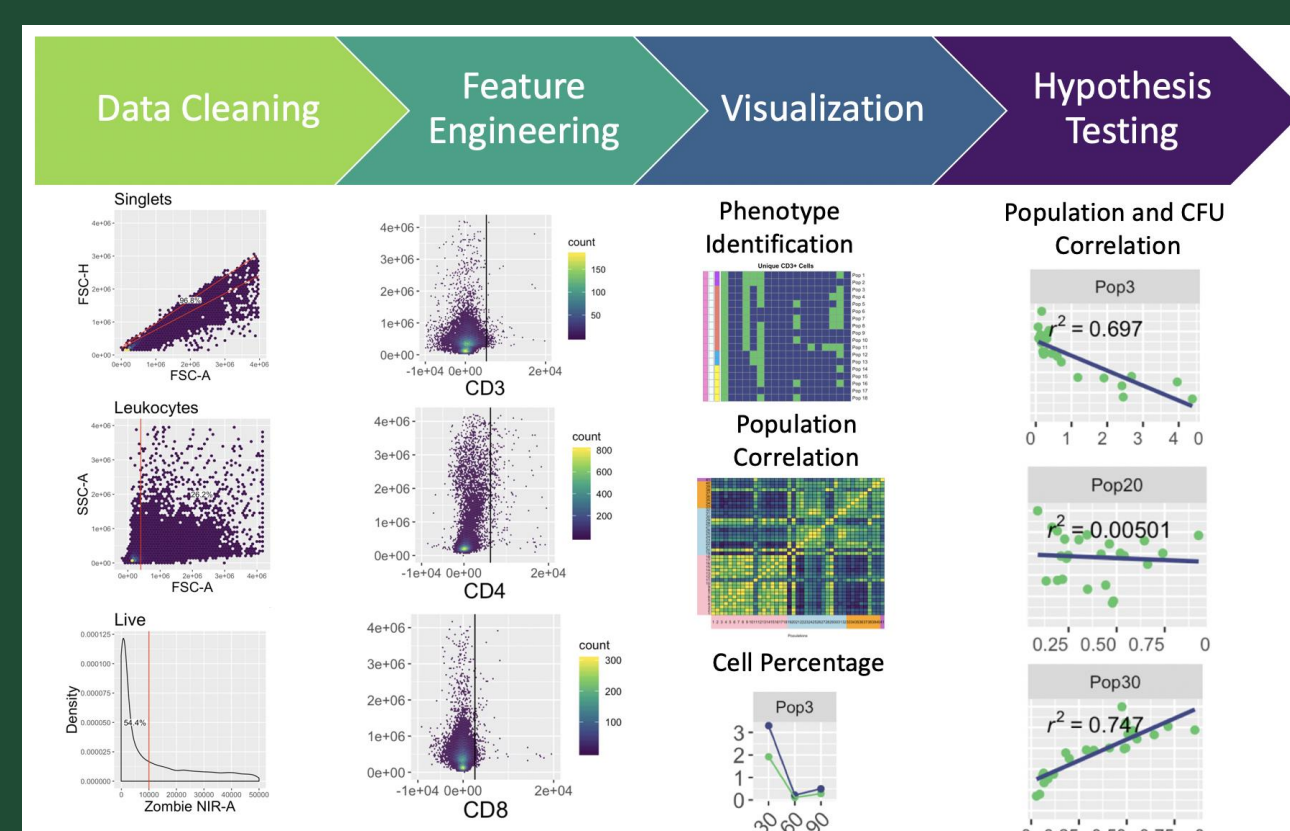
Elevator speech training

Amanda Koch was one of the many GAUSSI students selected for the 3-minute challenge by CSU's Vice President of Research

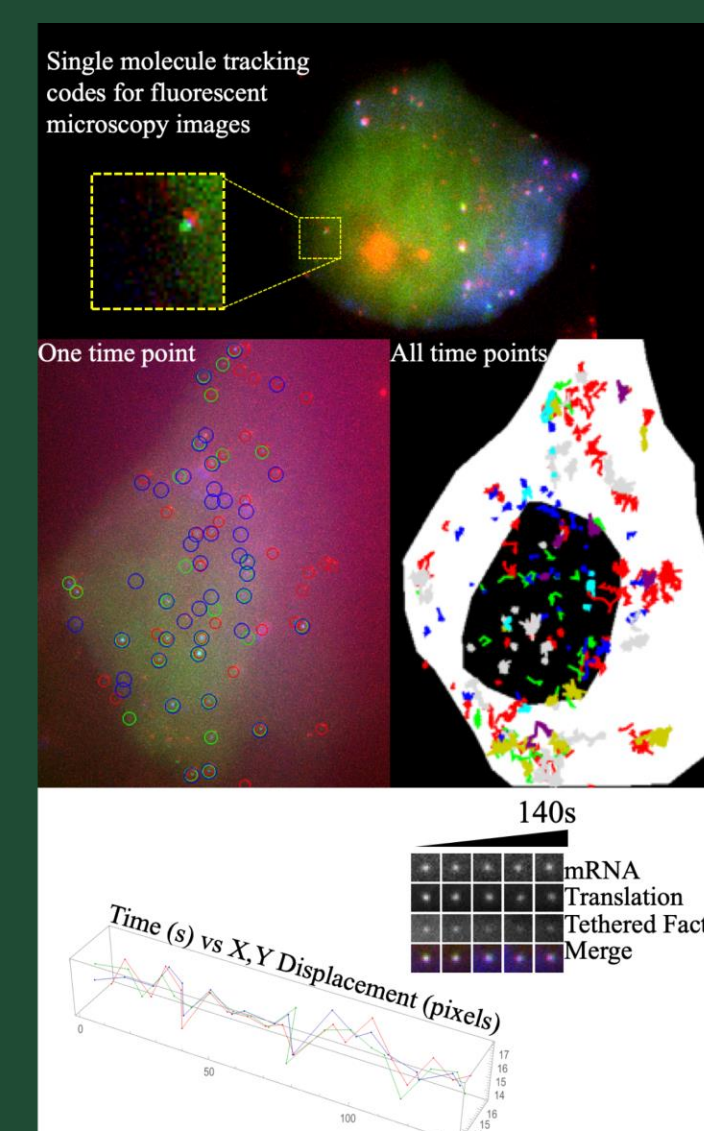
### Collaborative Research



Biomedical engineer Jasmine Nejad and electrical engineer William Tedjo use electrochemical sensing to image catecholamine release in adrenal slices



Microbiologists Amy Fox and Marcela Henao-Tamayo and Epidemiologist Brooke Anderson designed an automated data analysis pipeline to process large flow cytometry data



Biologist Tai Montgomery and Biochemists Tim Stasevich and Charlotte Cialek investigate a biological pathway in live cells using powerful imaging technology and computational analysis

### Awards and Fellowships

Chateaubriand Fellowship in Science, Technology, Engineering, Math and Health awarded to Jessica Warren  
CSU Vice President for Research Fellowship awarded to Zach Fox & Heather Deel  
NIJ Graduate Research Fellowship in Science, Technology, Engineering, and Mathematics awarded to Heather Deel & Aerial Belk  
NIH NIGMS T32 Predoctoral Training Grant in Quantitative Cell and Molecular Biology awarded to C Wilusz, L. Argueso, A. Ben Hur & J. Peccoud  
NIH Ruth L. Kirschstein National Research Service Award - Individual Predoctoral Fellowship awarded to Reyes Murrieta  
NSF Graduate Research Fellowship awarded to Adam Heck & Bridget Eklund  
Thomas A. Jones Graduate Fellowship awarded to Daniel Jonas

Funded by NSF-NRT Award 1450032

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### Advisory Board

Tina Larson Chief Operating Officer at Recursion Pharmaceuticals  
Larry Hunter Director, Center for Computational Pharmacology Computational Bioscience at CU Denver  
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