

# Barney Potter

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## Undergraduate thesis

title *Modeling Cell Signaling Networks with Prize-Collecting Subhypernetworks*  
supervisors James D. Fix & Anna M. Ritz  
description Developed the notion of a “hypershrib,” a multi-source, multi-target generalization of a hyperpath. Created a formulation that finds specific, prize-dense hypershrubs representative of biological phenomena, which was implemented in Python. Finally, applied this formulation to the human Hedgehog signaling pathway, related to Basal Cell carcinoma, to analyze the effectiveness of the algorithm in real data.

## Education

2012-2016 **B.A. Mathematics & Biology**, *Reed College*, Portland, OR.  
Main subjects: Computer Science, Computational Biology, Genomics, Statistics

## Experience

### Research

- 2016-Present **Research Assistant**, *Fred Hutchinson Cancer Research Center*, Seattle, WA.  
Feature development for [nextflu.org](http://nextflu.org) and [nextstrain.org](http://nextstrain.org). Database management and functionality support.
- 2015-2016 **Research Assistant**, *Reed College*, Portland, OR.  
Bioinformatic analysis of the effect of whole genome duplication on the transcriptome of *Arabidopsis thaliana*. Design and development of bioinformatic pipelines. Data acquisition and analysis. Molecular biology techniques including DNA/RNA extraction, RNA-Seq (including library preparation), and RNA-FISH.  
Detailed achievements:  
  - Recipient of Summer Undergraduate Research Fellowship, Reed College 2015;
  - Presented research poster at Inland Northwest Genomics Research Symposium, University of Idaho 2015;
  - Received funding to continue with post-baccalaureate research.
- 2014-2016 **Independent Research**, *Reed College*, Portland, OR.  
Took part in 6 week independent research projects as part of coursework. Research topics included:  
  - Impact of predator cues on tadpole development in *Bombina orientalis*.
  - Optogenetics in motor neurons of *Drosophila melanogaster*.
  - Selection rates in genes correlated with heavy-metal chelation.  
Additionally, took part in a semester-long project assessing the gene expression profile of two *A. thaliana* ecotypes following synthetic whole genome duplication.

## Teaching

- 2014-2016 **Teacher's Assistant & Tutor**, *Reed College*, Portland, OR, Academic Support Services.  
Oversaw introductory computational biology and genomics labs. Tutored undergraduates in computational biology, introductory computer science, and biology. Co-taught a cocurricular leadership course to undergraduates for the Reed Leadership Academy.
- 2012-2016 **Lead Teacher**, *Reed College*, Portland, OR, Reed Science Outreach.  
Developed and taught science curriculum to students at low-income elementary and middle schools in Portland. Acted as a mentor and role model for at-risk students. Coordinated directly with program manager and classroom teachers to ensure the highest quality of lessons possible for students.

## Service

- 2013-2014 **Servers' Assistant & Food Quality Specialist**, *Restaurants Unlimited Inc.*, Seattle, WA; Portland, OR, Palisade & Portland City Grill.  
Responsible for timely delivery of food to restaurant guests. Ensured that food met high quality standards, prior to delivery and that used dishware was removed promptly. Facilitated communication between restaurant guests and chefs to maximize the quality of guests' dining experience.

## Languages

Python	<b>3 years</b>	<i>All thesis work, and most class work.</i>
HTML & CSS	<b>1 year</b>	<i>Personal projects.</i>
Scala	<b>1 year</b>	<i>Class work.</i>
Java	<b>6 months</b>	<i>Class work.</i>
C#	<b>6 months</b>	<i>Game development through Unity.</i>
C++	<b>6 months</b>	<i>Personal projects.</i>

## Computer skills

Operating Systems	Windows, Mac OS X, Unix, Ubuntu
Programming	Algorithm Design, Linear Programming, Pipeline Tuning, Shell Scripts
Web	Git, Google Suite, Social Media, SSH
Development Platforms	Unity, Android Studio
Other	L <sup>A</sup> T <sub>E</sub> X, Inkscape, CPLEX, R

## Interests

Birding	Interested in the shorebirds of the Pacific Northwest.
Game Development	Member of Portland Indie Game Squad.
Horticulture	Making diverse garden beds of native Northwestern herbs and flowers.

## References

James Fix	<b>jimfix@reed.edu; 503-929-2732</b>	<i>Thesis co-advisor and academic advisor.</i>
Anna Ritz	<b>aritz@reed.edu; 503-517-4177</b>	<i>Thesis co-advisor.</i>
Jeremy Coate	<b>jcoate@reed.edu; 971-295-8785</b>	<i>Research supervisor.</i>

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**LAB NAME**

*INSTITUTION*

*ADDRESS LINE 1*

*ADDRESS LINE 2*

**DATE**

Dear NAME,

COVER LETTER BODY ADDING CHANGES FOR DEBUGGING

Thank you,

**Barney Potter**

*Attached: curriculum vitæ*