Jennifer Hammelman | CV

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jhammelman.github.io

Education

Tufts University   **Arts and Sciences**
B.S. in Biology and Computer Science, GPA – 3.72 Deans' List   *2012–2016*

Experience

Research

Center for Regenerative and Developmental Biology   **Tufts University**
Research Assistant   *Sept 2014–Present*

Working under Michael Levin, Vannevar Bush Professor of Biology to develop novel computational solutions for modeling regeneration pathways in the planarian flatworm.

Responsibilities:
- Reviewing primary literature for biological and computational subject matter related to regeneration, information flow and state modification, and computational modeling
- Overcoming obstacles to identifying unknown gene product from pathway information:
  - Complexity of subgraph alignment
  - Quickly querying a large database (26 GB)
    - Simplifying search process by preprocessing file information
    - Leveraging C language low-level memory access for faster analysis
  - Mapping gene names to ensemble unique identifiers
- Increasing capability to query more complex subgraphs

Department of Computer Science   **Tufts University**
Research Assistant   *Jun 2014–Aug 2014*

Worked under Assistant Professor Ben Hescott to set groundwork for network analysis of differential genetic interactions using epistatic miniarray profile data. Applied the department's current similarity metric algorithm developed for assigning function to protein-protein interaction networks, diffusion state distance (DSD) to genetic interaction networks.

Responsibilities:
- Reviewing primary literature on imputation and differential analysis of genetic interactions
- Preparing program for running DSD on genetic interaction datasets
  - Parsing genetic interactions from differential datasets and databases
  - Running multiple statistical tests on DSD results
  - Determining and visualizing interactions of interest
- Preparing data for grant proposal

Instructional

Department of Computer Science   **Tufts University**
Teaching Assistant   *Jan 2014–Present*

Teaching assistant for the Data Structures course *(COMP 0015)*.

Responsibilities:
- Holding office hours:
  - Debugging project assignments by identifying logical and semantic errors
  - Explaining course material
  - Helping develop design strategies
- Preparing mini-lectures for laboratories:
  - Requires strong understanding of data structures covered in the curriculum:
    - Dynamic Arrays
    - Linked Lists
    - Hash Tables
    - Binary Trees
- Grading Projects

Vocational

Tyco International   **Princeton, New Jersey**
Shared Services Intern   *Jun 2013–Aug 2013*
Member of a core project team focused on global implementation of BlackLine Account Reconciliation software for finance. Utilized Access SQL to create an efficient system for data manipulation and management.

Responsibilities:
- Consolidating Accounts Payable balance sheets
- Writing SQL queries in Access for importing user information from excel spreadsheets into BlackLine online software
- Developing a user manual for all BlackLine system accounting roles
- Planning presentation of culmination of intern work for the Finance Department

Computer skills

Basic: HTML, CSS, Adobe inDesign, LaTeX, MatLab, R, Microsoft Sharepoint

Intermediate: PYTHON, C++, C, Microsoft Excel, Linux

Relevant Coursework

Tufts University
Undergraduate Courses   *2012-2016*

- Biology
  - General Chemistry
  - General Genetics
  - Molecular Biology
  - Developmental Biology - in progress
- Computer Science
  - Data Structures
  - Machine Structure and Assembly Language Programming
  - Programming Languages - in progress
  - Introduction to Algorithms - in progress
- Mathematics
  - Discrete Mathematics
  - Calculus I and II
  - Linear Algebra - in progress