Jeff Gaston ● gastoj3@gmail.com ● 78 High Tower Rd, South Windsor, CT 06074

Objective

I'm exploring opportunities for work that is useful and interesting, most likely using my skills in software engineering, algorithms, and/or math.

About Me

It seems to me that one of the most important aspects of software engineering is to avoid duplicate work in the present and future. Duplicated effort often manifests itself as duplicate code but also can include other symptoms such as requiring several users to navigate the same unclear documentation or learn the same difficult user interface.

Skills

- Comfortable with algorithms, Git, Java, Bash, Gradle, bioinformatics tool development
- Familiar with GitHub, Python, Gerrit Code Review, machine learning, C#, JavaScript, C, C++, Jenkins, Tomcat
- Have used Maven, PostgreSQL, Hibernate, Spring IOC, Html, CSS, REST endpoints, WPF, .NET, Objective-C, BASIC

Highlighted Independent Projects

https://github.com/mathjeff/JeffsKnowledgeGraph (dependency graph of knowledge)
https://github.com/mathjeff/Mapper (short-read DNA sequence aligner)

- Published in *Genome Biology* 26, 15 (2025). NTU news

https://github.com/mathjeff/SessionManager (shell history tracker with searching and analysis)
https://github.com/mathjeff/ActivityRecommender (activity recommendation engine)
https://github.com/caozhichongchong/QuickVariants (multi-threaded genetic variant identifier)

- Published in *BMC Biology* 22, no. 1 (2024): 90.

https://github.com/mathjeff/VisiPlacer (view layout engine)
https://github.com/mathjeff/StatList (TreeMap with built-in aggregating)

Work Experience

Nanyang Technological University, 2024 – present

- *DNA-Protein binding*
  - Designed project plan with the PI
  - Developed model to predict binding pairs for >6k bacterial species
  - Worked with the team to identify multiple methods for testing the model
  - Explored, tested, and incorporated biological principles based on the model and dataset
  - Poster presentation at GRC 2025 Applied and Environmental Microbiology
- *Mentoring*
  - Helped three additional students with their own projects, primarily algorithm design
- Teaching
  - Co-teach a 315-student undergraduate course, BS1009 Introduction to Computational Thinking. Teach Python programming and logic
- Interviewing
  - Interviewed 20 applicants to our lab
- Created lab website https://genomiverse.net

Google, 2017 – 2024

- *Build speed:*
  - Cut AndroidX build time in half several times, including for example https://r.android.com/1183717
  - Improvement to Gradle's scheduler: https://github.com/gradle/gradle/pull/16481 (open source contribution to another company)
  - Implemented cacheable, multithreaded file finder in the platform based on teammates' design https://r.android.com/456378
  - Helped to set up incremental builds and a remote cache https://r.android.com/2065190

    - Added enforcement that tasks be up-to-date after running once: https://r.android.com/1114531
- *Build correctness:*
    - Added enforcement to disallow multiple tasks generating the same output file: https://r.android.com/1230056
- *Build understandability:*
    - Set up a system to prevent unchecked growth of log messages: https://medium.com/@mathjeff/preventing-log-creep-968b9d55720c
    - Added script to diagnose stateful build failures via binary search: https://r.android.com/938817
    - Added script to simplify build failures via binary search: https://r.android.com/960728
    - Made the build export the heap dumps on crash https://r.android.com/1235502
    - Fixed display bug in Gradle's rich console https://github.com/gradle/gradle/pull/15727
    - Created a script to run the appropriate version of the editor: https://r.android.com/796871

Vecna Technologies, 2012 – 2016

- *Developer productivity:*
    - Created a build script that codified the majority of the unwritten rules required to do a deployment starting from source code. Its primary advantage is to allow the user to specified the desired end state (most commonly "everything is deployed") rather than the desired path to that state.
    - Implemented pre-merge validation in Jenkins to decrease the number of build errors introduced by one individual but felt by another.
    - Bugfix of provisioning new build servers (open source contribution) https://github.com/jenkinsci/ec2-plugin/pull/201
    - Bugfix for EC2 nodes offline (open source contribution) https://github.com/jenkinsci/ec2-plugin/pull/213
    - Merged one git repo into another one, including keeping all of the history.
    - Designed and implemented a system for autogenerating versioned deployer scripts, resulting in the usage of any installer remaining clear and without any version-specific dependencies.
    - Scripted the process of installing the current development software on a new computer.
- *Knowledge sharing*
    - Mentored a total of five different individuals at different times.
    - Reorganized much of the technical wiki into a hierarchical structure to facilitate category-based knowledge discovery
- *Product work*
    - Improved accessibility mode to facilitate usage of self-service kiosks by visually impaired users.
    - Consolidated how updates to patient contact information were stored, including writing code to upgrade preexisting data from the old location to the new location.
    - Made the data model of print jobs more configurable to facilitate separately configuring different forms to print with different parameters and different conditions.

Education

Rensselaer Polytechnic Institute, Troy, NY, 2008-2012
MS degree in CS – GPA 4.0/4.0
BS degree in Math & CS – GPA 4.0/4.0