Post-Doctoral Research Fellow, Bayesian Methods for B Cell Receptor Sequence Lineages

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Cures Start Here. At Fred Hutchinson Cancer Research Center, home to three Nobel laureates, interdisciplinary teams of world-renowned scientists seek new and innovative ways to prevent, diagnose and treat cancer, HIV/AIDS and other life-threatening diseases. Fred Hutch’s pioneering work in bone marrow transplantation led to the development of immunotherapy, which harnesses the power of the immune system to treat cancer. An independent, nonprofit research institute based in Seattle, Fred Hutch houses the nation’s first cancer prevention research program, as well as the clinical coordinating center of the Women’s Health Initiative and the international headquarters of the HIV Vaccine Trials Network. Careers Start Here.

At Fred Hutch, we believe that the innovation, collaboration, and rigor that result from diversity and inclusion are critical to our mission of eliminating cancer and related diseases. We seek employees who bring different and innovative ways of seeing the world and solving problems. Fred Hutch is in pursuit of becoming an antiracist organization. We are committed to ensuring that all candidates hired share our commitment to diversity, antiracism, and inclusion.

Post-Doctoral Research Fellow/Research Associate - Postdoctoral position to develop Bayesian methods for B cell receptor sequence lineages

The goal of our project is to develop, implement, and apply Bayesian evolutionary algorithms for the analysis of B cell receptor sequence lineages. These lineages are important for understanding the events leading to the development of high-affinity antibodies.

We are motivated to:

- use a Bayesian approach to appropriately account for uncertainty in phylogenetic inferences (which is considerable in this case)
- fit and use complex models of somatic hypermutation and selection that violate the commonly-applied IID assumption in phylogenetics
- develop efficient, elegant, and robust implementations of the newly developed methodology and make them available in open-source software for the community.
Responsibilities
We will work together to develop novel models, implement these models in open-source software, write tests to verify correctness, apply the methods to a variety of data sets, and write papers describing the results.

We’ll have the opportunity to work with a broad range of leading researchers, including:

- biologists Jesse Bloom, Leslie Goo, Julie Overbaugh, Gabriel Victora, and their labs
- statisticians Vladimir Minin, Noah Simon, Marc Suchard, and their groups.

Environment
The position will come with a competitive postdoc-level salary with great benefits for two years, with possibility of extension. The environment is lively yet casual, with a strong emphasis on collaborative work. The Center is housed in a lovely campus on Lake Union a short walk from downtown, and a slightly longer walk from the University of Washington. The Matsen group is in the newly-remodeled Steam Plant building overlooking the lake. Powerful computing resources and a helpful IT staff await. Ideally you’d want to be on campus (when that’s possible again) but long-term remote work is possible from these states: Alabama, Alaska, Arizona, California, Colorado, Hawaii, Idaho, Maryland, Minnesota, Montana, New York, Ohio, Oregon, South Carolina, and Texas.

We believe that science is for everyone. We have had researchers with a variety of backgrounds, including Latinx, Black, Asian, and Middle Eastern. We have had women, men, gay, and straight, and welcome people of all sexual orientations and gender identities. We have had successful high schoolers, postdocs, people who were the first in their family to attend college, and one who had decided that college wasn't for them. We have had researchers with backgrounds in biology, physics, statistics, math, and computer science.

We acknowledge the historical and present barriers for underrepresented groups, and work to increase diversity, equity and inclusion in computational biology. Members of underrepresented groups are especially encouraged to apply.

You can find out more about our group by visiting:
http://matsen.fredhutch.org/
http://github.com/matsengrp

Qualifications
The ideal candidate for this project would have experience with the statistical underpinnings of Bayesian phylogenetic analysis, as well as experience implementing models in code. However, we welcome applications from candidates with less statistical expertise but a deep desire to expand their skills in this area. We hope applicants will want to improve their coding abilities through clean coding practices, code review, and a modern development workflow. The ideal candidate would also be motivated to improve biological understanding through computation, and so would be enthusiastic about working closely with our leading biologist collaborators.
MINIMUM QUALIFICATIONS:

- Ph.D. in biology, computer science, math, or another relevant area
- Solid foundation in Bayesian phylogenetics or other challenging Bayesian estimation problem
- Computer programming experience
- Clear ability to perform independent research

If you are interested in this position, please submit the following materials:

- Two representative publications
- A code sample
- CV

A statement describing your commitment and contributions toward greater diversity, equity, inclusion, and antiracism in your career or that will be made through work at Fred Hutch is requested of all finalists.

Our Commitment to Diversity
We are proud to be an Equal Employment Opportunity (EEO) and Vietnam Era Veterans Readjustment Assistance Act (VEVRAA) Employer. We are committed to cultivating a workplace in which diverse perspectives and experiences are welcomed and respected. We do not discriminate on the basis of race, color, religion, creed, ancestry, national origin, sex, age, disability (physical or mental), marital or veteran status, genetic information, sexual orientation, gender identity, political ideology, or membership in any other legally protected class. We are an Affirmative Action employer. We encourage individuals with diverse backgrounds to apply and desire priority referrals of protected veterans. If due to a disability you need assistance/and or a reasonable accommodation during the application or recruiting process, please send a request to our Employee Services Center at hrops@fredhutch.org or by calling 206-667-4700.