Position Details

Department: The Department of Botany & Plant Pathology

Number of Vacancies: 1

Location: Corvallis Campus

Position appointment percent (FTE): 1.0

Appointment basis (12m or 9mo): 12mo

Anticipated appointment begin date: 06/01/2022, or as negotiated

Anticipated appointment end date: 12/31/2023, with option for possible extension

Closing date/Full consideration date: April 30, 2022

Recommended Full-Time Salary: (salary rate listed here, depends on years of experience: https://gradschool.oregonstate.edu/postdocs/stipends-and-benefits)

Position Summary:

The Postdoctoral scholar will be part of a team tackling a newly commenced NSF-funded project investigating genome-to-phenome relationships in maize (https://nsf.gov/awardsearch/showAward?AWD_ID=2041384).

The project will build upon results from Warman et al. 2020 (https://doi.org/10.1371/journal.pgen.1008462, Figure 6), analyzing a large quantitative phenomic dataset to address the potential for identifying relationships between genome-wide molecular measures (e.g., transcript level) and gene knockout effects in vivo. The candidate will have recently completed their PhD, with formal training in computational biology, and is being recruited specifically for implementing project goals using approaches in machine learning, statistical analysis, and computer vision. The candidate will also have evidence illustrating strong communication skills (e.g., publications, submitted grant proposals, oral presentations.)

Extensive experience in molecular biology or genetics is not required; however, familiarity with 'omics-type datasets (e.g., RNA-seq, proteomic profiling) is highly preferred. Project PI Fowler (https://bpp.oregonstate.edu/bpp/fowler-lab, https://www.youtube.com/watch?v=sc0Ea6r-5SA) will ensure that the postdoc receives appropriate training and mentoring to engage with the biological aspects of the project; and guidance from Co-PIs Megraw (http://megraw.cgrb.oregonstate.edu/mollymegraw) and Jiang (https://stat.oregonstate.edu/people/jiang-duo) will ensure the team member will continue to grow as a quantitative scientist. We anticipate that, at the completion of training, the Postdoc will emerge as an interdisciplinary biologist, enabled to establish an independent research program as faculty, or to lead a research team in industry, with knowledge in plant biology and genetics, skills in quantitative and computational approaches, and communication abilities to cross-disciplinary boundaries.

Position Duties:

Computational biology: 50%. Computational work includes generating and testing machine learning and computer vision models, performing bioinformatic analyses (e.g., familiarity with RNA-seq pipelines, database mining), implementing appropriate statistical approaches.

Communication: 20% Preparation of manuscripts, reports, conference posters, oral presentations.

Supervision: 15%. Professional Development, including mentoring of an undergraduate student in quantitative approaches in biology (e.g., from the OSU Biological Data Sciences or Statistics programs).

Field work: 10%. Contributing to the large-scale maize genetics effort required for the generation of phenomic data in the summer.

Other: 5%. Maintaining the lab's imaging and computer vision infrastructure, and other work relevant to the project and assigned by the PI.

Minimum/Required Qualifications:

PhD in Computational Biology, Bioinformatics, or related field

Demonstrable training and project experience in machine learning and/or statistics. Examples of training include university coursework in machine learning or an online certificate. Examples of project experience include a substantive class project or a lab research project.

Demonstrable evidence of communication skills: publications, submitted grant proposals, oral presentations in computational biology, statistics or a related field.

Preferred (Special) Qualifications:

Preferred expertise in machine learning: Supervised methods (classification and regression), dimensionality reduction, regularization, cross-validation, and measures of assessment.

Preferred expertise in statistics: Multivariate statistics, linear and generalized linear regression models, high-dimensional methods, and predictive and inferential statistics.

Familiarity with genome annotation, sequence analysis tools, 'omics data types, and informatics analysis of genome-scale datasets.

Familiarity with computer vision approaches (e.g., convolutional neural networks; Tensorflow).

Preferred communication experience: evidence of communicating computational approaches and results to interdisciplinary audiences. Examples include a seminar talk with an audience composed primarily of attendees without a formal computer science background, a project write-up in a biologically oriented journal, or an exam talk where one or more committee members are biologists.

Ability to collaborate and communicate clearly and effectively with diverse groups of people and in multi-disciplinary teams.

A demonstrable commitment to promoting and enhancing diversity, equity and inclusion (e.g., participation in implicit bias workshops, support of outreach efforts to marginalized populations, contributions to institutional or society-level DEI committee work).

Working Conditions / Work Schedule:

Office, laboratory and (in summer) field (Botany & Plant Pathology Field Lab, ~15 minutes from campus). 40 hours per week.

Special Instructions to Applicants:

When applying you will be required to attach the following electronic documents:

1) A resume/CV; and

2) A cover letter indicating how your qualifications and experience have prepared you for this position.

3) You will also be required to submit the names of at least three professional references, their e-mail addresses and telephone numbers as part of the application process.

For additional information, please contact: John Fowler, fowlerjo@oregonstate.edu

OSU commits to inclusive excellence by advancing equity and diversity in all that we do. We are an Affirmative Action/Equal Opportunity employer, and particularly encourage applications from members of historically underrepresented racial/ethnic groups, women, individuals with disabilities, veterans, LGBTQ community members, and others who demonstrate the ability to help us achieve our vision of a diverse and inclusive community.