Post Doctoral Position in Statistical Genetics in Cassava – Cornell University

This position is within the Section of Plant Breeding and Genetics at Cornell, within the NEXTGEN cassava research program (www.nextgencassava.org). Cassava is a critical food security crop in sub-Saharan Africa for which genomic resources are only now being rapidly developed.

NEXTGEN Cassava researchers at Cornell work with primary collaborators in Nigeria and Uganda and a wider network of collaborators at other research programs. The hired person will join this team to aid genomic analyses and interaction with new collaborators. Analyses will include genomic prediction training population design, experimental design for trait evaluation, and understanding breeding goals to implement selection decision support.

In addition to direct work with collaborators, the postdoc will pursue research to improve the team’s analysis capacity overall by developing new methods or data, extending analyses of existing data, or improving implementations of existing methods. Possibilities include:

- Identifying and implementing models to jointly analyze populations from multiple collaborators where the data exhibits sub-population structure;
- Developing algorithms for automated training population design, requiring exploration of a large repository of cassava data (www.cassavabase.org);
- Low-depth sequencing of parents used in African cassava breeding programs to obtain ultra-high density marker profiles of their progeny for prediction and association studies;
- Implementing algorithm-based experimental design methods to lower error variance of collaborator phenotyping efforts;
- Method development for selection by identifying and selecting for greater recombination in genomic regions where such recombination is low;
- Maintaining diversity during genomic selection;
- Selecting on traits to improve stability in the presence of genotype by environment interaction.

There is tremendous scope within the lab for research that will have high impact on this important crop and on plant breeding in the genomics era generally. Travel and teaching in sub-Saharan Africa will also be possible within this position.

The position term is one year, renewable to two years contingent on performance. Extending beyond two years contingent on funding.

**Anticipated Division of Time**

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<td>Applied research providing genomic predictions and selection decision support with collaborators</td>
<td>40%</td>
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<td>Basic research to improve NEXTGEN Cassava team analysis capabilities</td>
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<td>Participation in preparation of annual reports and publications</td>
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<td>Formal and informal training of lab members and collaborators in statistical genetics and genomics</td>
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Position Requirements
Ph.D. in statistics or applied mathematics with experience in predictive modeling or Ph.D. in plant or animal breeding with emphasis on statistics; or in statistical or computational areas of genetics. Specific technical/administrative skills required:
• High-dimensional data analysis
• One or more programming languages
• Proven scientific writing ability and communication skills

Preferred Qualifications:
• Experience in plant breeding practice, analysis of plant breeding data, statistical genetics, and crop physiology
• Knowledge of databases / database programming

How to Apply
Please send the following in a single PDF to daniel.torrington@cornell.edu, with the subject “Statistical Genomics Post Doctoral Position Application”:
1. A letter of interest
2. A current CV
3. Contact information (email and phone number) for three references

Review of applications will begin in mid to late January and will continue until the position is filled.