

Postdoctoral Associate Position At UNC Chapel Hill

Postdoctoral Associate Position:

Prof. Tanya Garcia is currently recruiting a highly motivated and driven Postdoctoral researcher with a fresh PhD in Statistics/Biostatistics to join her lab at the Department of Biostatistics at the University of North Carolina at Chapel Hill.

This position will provide a unique opportunity to be part of an enthusiastic research team working to develop statistical strategies that help researchers estimate, with high accuracy, the disease course for neurodegenerative diseases, so that we may identify when an experimental therapy could best modify the disease course. The ideal postdoctoral researcher is expected to function with relative independence and responsibility. The Garcia Lab provides training opportunities so that the postdoctoral researcher can grow their leadership and management skills.

You, as the ideal postdoctoral researcher, must be respectful, curious and open to feedback; an excellent programmer (experienced in R and GitHub); an excellent communicator (experienced in writing and publishing statistical methods papers, and presenting scientific talks); and you enjoy being the “go-to” person to help lab members.

You will be responsible for developing and implementing new statistical methods, and testing those methods on our available neurodegenerative disease data sets. You will be responsible for maintaining systems and structures that ensure the methods and results are reproducible.

Due to federally-mandated funding restrictions, the postdoctoral trainee MUST be a US citizen or permanent resident.

Research in the Garcia Lab:

Developing disease-modifying therapies for neurodegenerative diseases is notoriously difficult and is exacerbated by the lack of accurate statistical models to identify the optimal time for intervention. Models of how symptoms worsen over time—the symptom trajectory—before and after a clinical diagnosis can help identify that optimal time. These models can help pinpoint when therapies could prevent a clinical diagnosis, or slow the disease after a clinical diagnosis.

Yet modeling the symptom trajectory is not easy even for Huntington disease, where researchers can track symptoms in patients guaranteed to develop the disease. Like other neurodegenerative diseases, Huntington disease progresses slowly over decades, so studies that track symptoms often end before clinical diagnosis. This makes time to clinical diagnosis right-censored (i.e., a patient’s motor abnormalities will merit a clinical diagnosis sometime after the last study visit, but exactly when is unknown), leaving researchers with the challenge of trying to model the symptom trajectory before and after clinical diagnosis without full information about when clinical diagnosis occurs.

The challenge creates a unique statistical problem of modeling the symptom trajectory as a function of a right-censored covariate, time to clinical diagnosis. Tackling this problem by modeling the distribution for time to clinical diagnosis has long been thought to be the

best strategy. For years, we and others worked to develop reliable distribution models, but we found that if the model is slightly wrong, we get biased estimates of how the symptom trajectory changes as a function of time to clinical diagnosis. The bias results in clinical trials that are incorrectly powered and thus cannot determine with statistical significance if a therapy modifies the disease course.

A solution is needed to reliably estimate the symptom trajectory as a function of time to clinical diagnosis, even when time to clinical diagnosis is censored and potentially mismodeled. Our team is dedicated to developing methods that protect against mismodeling, so we can help researchers design well-powered clinical trials for these devastating diseases.

Our list of our publications is [here](#).

Additional Responsibilities and Opportunities:

- You will have the opportunity to write first-author statistical methods and subject-matter papers.
- You will have the opportunity to co-author statistical methods and subject-matter papers with PhD students, and train those students to develop reproducible research.
- You will collaborate with Dr. Garcia and collaborators at UNC Chapel Hill to co-author scientific manuscripts, and help to prepare grant proposals for the NIH.
- You will be part of monthly professional development workshops led by Dr. Garcia and guest speakers. These workshops will focus on building skills in leadership, mentoring, project management, public speaking, team-building, among others.
- You will be part of our lab's writing group. Dr. Garcia has developed a series of videos to train her lab on how to write clear, compelling, and exciting manuscripts and applications (for faculty positions, internships, and national awards). The writing group is actively working on different applications and manuscripts, and meets on a bi-weekly basis to give and receive feedback.
- You will be part of our lab's reading group. The lab meets on a bi-weekly basis to discuss papers on neurodegenerative diseases. The lab also uses these sessions to brainstorm ideas about how our statistical methods can be used to answer ongoing questions in the field.

Your skills and abilities (Required):

- You are open to feedback, and act on it.
- You are enthusiastic about learning new statistical techniques that can be applied to solve real-world problems.
- You are highly motivated to pursue and establish a career in research.
- You are self-motivated and driven.
- You are able and willing to work independently.
- You are a fast learner and critical thinker.
- You are results-driven/outcome oriented.
- You are flexible with your time.
- You are organized.
- You maintain high standards in research.

- You are an excellent communicator.
- You are ready to hear about and overcome any patterns that interfere with your productivity and growth as a person and scientist.

Your Technical Skills (Required):

- You are trained in longitudinal data analysis, survival analysis, and/or semiparametric/nonparametric methods.
- You are able to implement, test and document statistical methods in R. (Experience in C++, Fortran, and/or Python is welcomed.)
- You are able to independently write manuscripts for publication in statistics journals.
- You can communicate statistical methods and results in clear and simple language.
- You are able to think critically, develop and test statistical methods/models and interpret results independently.

How to Apply:

Please send the following application materials to Dr. Tanya Garcia (tpgarcia[at]email[dot]unc[dot]edu):

- A one-page cover letter stating why you are interested in this position and what your qualifications are.
- A one-page essay about how your values and vision matches ours (see our team values). Include three strengths that you'd like to bring to our team and three weaknesses. You can do the self assessment at principlesyou.com to increase your self-awareness.
- Do this [research write-up](#).
- Your CV.
- Names and contact information of three references. Please also state what the nature of your work relationship with these people was/is