

## Postdoctoral Researcher At UNC Chapel Hill

### Postdoctoral Researcher 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. Learn more about her and her lab [here](#).

The postdoctoral researcher will join a research team focused on developing statistical methods that help researchers accurately estimate the disease course for neurodegenerative diseases. Accurate estimates of the disease course can help researchers to identify when an experimental therapy could modify the disease course and to design a well-powered clinical trial to test that therapy. Our team is dedicated to achieving that goal together, having fun along the way! We enjoy connecting with each other and understanding how to tap into our talents and personalities and align them with the goals we aim to achieve together. We encourage and support each other as we work towards high standards of performance. We value tried-and-true solutions but are also willing to deviate from existing rules and traditions to find new answers when necessary. We use and develop theories and models to solve problems, while also relying on intuition and a process-oriented approach to reach decisions.

The ideal postdoctoral researcher has expertise in longitudinal data analysis, survival analysis, and/or semiparametric/nonparametric methods. They strive to produce clear, reproducible research and enjoy taking on new challenges. They are respectful, curious, and open to feedback. They enjoy a mix of working independently and collaborating with others to achieve a common goal.

The Garcia Lab welcomes applications from all, especially from underrepresented groups.

### Research in the Garcia Lab:

The Garcia Lab is proud to have its work funded by an [R01 from the National Institutes of Health](#). The main focus of that R01 and the problem to be tackled by the postdoctoral researcher is the following.

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.



Celebrating the submission of our review paper at ParTEE Shack!

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.

By joining the Garcia Lab, you will work with us, side-by-side, to develop a solution that reliably estimates the symptom trajectory as a function of time to clinical diagnosis, even when time to clinical diagnosis is censored and potentially mismodeled. Our goal is to develop methods that protect against mismodeling, so we can help researchers design well-powered clinical trials for these devastating diseases.

### Opportunities Working in the Garcia Lab:

- Writing first-author methodological and applied statistical papers.
- Mentoring graduate students and writing co-authored methodological and applied statistical papers with them.
- Collaborating with UNC researchers on grant proposals. Presenting technical talks at research conferences.
- Training in a step-by-step process to map out and communicate clear, articulated research ideas. Former trainees have used this process to win competitive awards, honors, and grants.
- Training to develop your authentic leadership style. You will learn techniques rooted in scientific studies, apply those skills when mentoring graduate students, and receive feedback in real-time.
- Training in developing and writing your own research grant.

### Required Technical Skills:

- Expertise in longitudinal data analysis, survival analysis, and/or semiparametric/nonparametric methods.
- Able to develop and justify new statistical methods.
- Able to implement, test, and document statistical methods in R. (Experience in C++, Fortran, and/or Python is welcomed.)
- Able to communicate statistical methods in clear and simple language for publication

in statistics journals.

### Encouraged Interpersonal Skills:

- You are open to feedback, and act on it.
- You are curious.
- You are flexible with your time.
- You are results-driven/outcome oriented.
- You are organized.
- You are self-motivated and driven.
- You are highly motivated to pursue and establish a career in research.
- You enjoy learning.

### How to Apply:

Please submit the following material [here](#)

- Your Curriculum Vitae/Resume.
- A one-page cover letter stating why you are interested in this position and what your qualifications are.
- Names and contact information of three references. Please also state what the nature of your work relationship with these people was/is.