

Research Assistant Positions in Statistical Genetics and Computational Biology

The Functional Genomics research team at the Center for Statistical Genetics in the G.H. Sergievsky Center and Department of Neurology at Columbia University Vagelos College of Physicians and Surgeons currently has openings for graduate student researchers for Fall 2022, for **first year Master students or junior PhD students** currently enrolled in a graduate program at Columbia University. Students will be working on problems across a wide range of disciplines including computational biology, data science/statistics/biostatistics, bioinformatics, human and medical genetics, epidemiology, neurology and brain sciences. Students will receive training in genetics, statistics, bioinformatics and programming, and gain rich practical experiences working with human data spanning the Central Dogma of Biology.

Projects for Fall 2022 are centered around the brain functional genomics of Alzheimer's disease (AD). A diverse source of multi-omics data is available to support inference on molecular mechanisms of functional genomics landscape in human brains as well as how they potentially contribute to AD. The following projects are available for student researchers:

- Integration of transcriptome level molecular phenotypes such as transcript specific expression, alternative splicing and protein isoforms for the identification of functional genomic variants with contribution to AD.
- Benchmarking of colocalization methods for genetic association studies and application of these methods for multi-trait molecular Quantitative Trait Loci (QTL).
- Discovery of the regulatory role of rare variants in multiple layers of molecular phenotypes.
- Perform genome-wide statistical fine-mapping of molecular QTLs with integration of functional features from various data sources.
- Application of novel gene-set enrichment methods to identify pathways associated with AD.
- Transcriptome-wide association analysis for AD using multiple molecular phenotypes.
- Other more advanced projects on multi-omics data analysis methods and applications are available to highly motivated student candidates with solid background knowledge on related fields.

Development of high quality open-source software, benchmarks and/or analysis pipelines are required for these projects. Successful candidates will work under the supervision of Gao Wang, Assistant Professor of Neurological Sciences, with support from other members from Gao's group at the Center for Statistical Genetics. Please find more information about our group and the position at <https://wanggroup.org>.

To apply, please email your curriculum vitae and a link to your github.com profile (if you have it) to Gao Wang (wang.gao@columbia.edu), using the subject header *Research Assistant Application*. The positions are open until filled and applications will be reviewed on a rolling basis. Informal inquiries are welcome.