

POSITION DESCRIPTION: Faculty – Appointment level is flexible

DEPARTMENT: Division of Biostatistics and Epidemiology and Pediatric Radiology- affiliated with the Pediatric Neuroimaging Research Consortium (PNRC) and the Imaging Research Center

ORGANIZATION RELATIONSHIPS -

SUPERVISOR'S TITLE: Director of Biostatistics and Epidemiology, Scientific Director of PNRC

COLLABORATIVE RELATIONSHIPS: PNRC faculty and staff, Imaging Research Center faculty and staff, Biostatistics faculty and staff. Scientists at Cincinnati Children's Research Foundation.

TITLES SUPERVISED: Post-docs, graduate students, medical students, research assistants.

TOTAL NUMBER OF FTE's SUPERVISED DIRECTLY OR INDIRECTLY: 1

PURPOSE OF POSITION: Develop and implement novel statistical methods for use in advance neuroimaging and brain mapping involving MRI, fMRI, DTI, MEG, EEG and/or TMS methods using resources available at Cincinnati Children's Hospital Medical Center (CCHMC). Provide high-level statistical image analysis expertise and support for collaborative imaging research projects that utilize these methods for studies of developmental and neurocognitive disorders of childhood.

MAJOR DUTIES AND RESPONSIBILITIES:

1. Propose and facilitate the use of advanced statistical methods for neuroimaging analysis to study brain structure and function such as fMRI, DTI and MEG connectivity analysis. This may include multimodal approaches combining MRI and electrophysiological methods such as MEG, EEG, or TMS.
2. Develop novel statistical methods for the analysis of neuroimaging data including fMRI, MRI, DTI and MEG.
3. Collaborate with Radiology and the Divisions in Pediatrics and the PNRC faculty in the development of new, basic research projects involving statistical image analysis methods and connectivity analysis of non-invasive brain imaging data in children with developmental and neurocognitive disorders.
4. Analyze brain image data using existing commercial and publicly available image analysis programs This includes development and programming of novel analytical approaches as required.
5. Provide documentation of methods and code developed and instructions to other faculty and staff in the use of such methods for statistical neuroimaging data analysis.
6. Work with Biostatistics and PNRC faculty to prepare grant proposals and scientific publication as a principal investigator or co-investigator.

REQUIRED SKILLS: Excellent command of neuroimaging physics and image analysis techniques for MEG, EEG and MRI including fMRI and DTI. A firm grasp of the statistical analysis methods for electrophysiological techniques such as EEG, MEG or TMS. Ability to design and implement complex functional neuroimaging experiments involving children. Experience with computational and statistical methods for neuroimaging. Previous experience in functional brain imaging, statistical signal processing, psychophysics or cognitive/systems neuroscience. Advanced analysis of neuroimaging data. Excellent writing skills for grant proposals and scientific papers. Familiarity with neuroimaging acquisition methods and systems such as MRI, MEG and EEG.

EDUCATION/WORK EXPERIENCE: Appointment level will be commensurate with training and job history. A Ph.D. in Statistics, Biostatistics, Mathematics, Physics, Engineering, or related field is preferred with experience in MRI including fMRI, MEG and DTI. Previous experience in neuroimaging analysis methods complementary to multimodal brain modeling based on MRI, MEG, EEG, or TMS is an asset. Also desired is experience in human research studies involving children and their families.

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