**Research Statement**

Yang Hou

Faculty Profile: <https://med.fsu.edu/directory/full?directoryId=25843>

I am an Assistant Professor and Director of the Development, Equity, and Resilience (DEaR) Lab in the College of Medicine at Florida State University. Broadly, my research centers on how environmental and biological factors influence the neurobehavioral (cognitive, academic, socioemotional, behavioral) development of individuals in underrepresented groups such as families with neurofibromatosis type 1 (NF1) and ethnic minorities across the life-span. My primary line of research aims to identify developmental patterns and predictors of the neurobehavioral outcomes of individuals with NF1. My ongoing project, funded by the Congressionally Directed Medical Research Program (CDMRP) Neurofibromatosis Research Program (NFRP), uses integrative data analysis and advanced statistical approaches to comprehensively delineate the neurobehavioral phenotype of children and youth with NF1. I am extending my research to middle and older adulthood to provide a more comprehensive life-span view of neurobehavioral development in individuals with NF1.

My project, recently funded by the Children’s Tumor Foundation Clinical Research Award (CRA), aims to delineate the cognitive profile and cognitive aging patterns and identify predictors of cognitive function among middle-aged and older adults (MOA) with NF1. Cognitive impairments are present in 80% of children with NF1, significantly affect quality of life, and increase the burden on families and society. Cognitive problems may worsen in MOA with NF1, given the natural cognitive decline during later periods of life. However, most existing NF1 neurocognitive research and clinical trials have focused on childhood to young adulthood. MOA with NF1 is incredibly understudied and underserved. We have little empirical evidence on how cognitive functions change with age and what factors predict cognitive aging among MOA with NF1. The CRA will address this critical gap to provide much-needed information for patient management and intervention development, including a) the cognitive profile and age differences in cognitive function among MOA with NF1; b) which subgroups of patients with certain NF1-related disease factors are at greater risk for cognitive problems among MOA; and c) how psychosocial factors (e.g., psychological wellbeing, social integration, personality) predict cognitive aging among MOA with NF1. Such knowledge will help MOA with NF1 and their families and care providers to develop more realistic expectations about cognitive aging and inform what psychosocial factors may be promising intervention targets to improve cognitive health.

The CRA project collects survey and interview data on cognitive function and potential between-person predictors. I am applying for a new NFRP grant to collect ecological momentary assessment data from participants of the CRA project to examine how psychosocial factors, pain, sleep quality, and physical activity relate to cognition in adults with NF1 at the within-person level. Findings will provide critical information to develop personalized interventions that improve cognitive health.