**Investigating Resilient Psychosocial Functioning in Youth Using Functional Brain Connectivity and Digital Phenotyping:
Are Individuals with Higher Resilience More Distinctive?**

Mental health problems like depression and anxiety are extremely common worldwide. Despite major efforts to improve mental health care, rates of mental illness have not decreased over the past few decades. To make real progress, we need to shift focus from treating illness to promoting wellness and resilience before problems start. Resilience refers to the ability to cope with and bounce back from stress. Some people are more resilient, while others struggle more with stress and can develop mental health issues. This study will examine links between resilience, smartphone-based digital behavioral data and brain connections. We will recruit 129 youths aged 18-24 from Hong Kong. Participants will complete questionnaires about their psychosocial functioning and retrospective early life stress prior to age of 18. We will also collect GPS mobility data and screen usage time from their smartphones over two months. In addition, participants will undergo an MRI brain scan to map connectivity between different brain regions at rest. We will calculate an outcome-based resilience for each person by taking into account both their psychosocial wellbeing and self-reported early life experiences. Computational techniques will be employed to identify individuals based on their digital and brain connectivity patterns. It is hypothesized that individuals who are more unique and distinguishable from the others may show higher levels of resilience. Subsequently, machine learning models to predict individual resilience will be developed using digital and brain imaging data. This procedure aims to shed light on specific digital and brain patterns associated with resilience. Understanding the links between resilience and individual patterns of digital or functional connectivity could offer valuable insights into promoting adaptation to life stressors. Identifying digital and biological markers of resilience could ultimately help design tailored interventions to reduce risk when people experience significant life stress. Overall, this innovative study integrates psychology, neuroscience, and data science to elucidate potential mechanisms underlying resilience, moving beyond a disease-focused view. Leveraging smartphone and brain imaging as tools for resilience research represents a fresh, interdisciplinary perspective with potential clinical impacts for mental health promotion.