Using Smartphones to Advance Data Driven Digital Mental Health

PI: John Torous, MD

Location: Division of Digital Psychiatry, Beth Israel Deaconess Medical Center, Harvard Medical School

Description: Our group has several focuses including 1) investigating smartphone-based digital phenotyping to predict relapse in mental health and 2) developing digital health tools for supporting depression and anxiety care. Our goal is to understand how digital signals generated by everyday use of smartphones may be associated with symptomatology and to improve the quality and accessibility of treatment for mental illness through education, research, and innovation in digital psychiatry. Opportunities are also available to be involved in supervised clinical and neurocognitive assessments. Multiple publications may also be afforded, as well as opportunities to present at conferences around the country. Prior research assistants have each had first-author publications and have presented at national or international meetings.

We are seeking motivated students with a technical background and a strong interest in applying their skills to advance digital mental health care. The ideal candidate will have some experience and/or coursework in one or more of the following areas:

1. Full Stack or Mobile App Development:
    - Some experience with front-end and back-end development, ideally using TypeScript/JavaScript.
    - Familiarity with Node.js.
    - Interest in mobile app development and deployment for iOS/Android platforms.
2. DevOps Interest and Skills:
    - Exposure to cloud platforms, particularly AWS (Amazon Web Services), for deployment, monitoring, or scaling of applications.
    - Familiarity with concepts such as containerization (e.g., Docker), or infrastructure-as-code tools (e.g., Terraform, CloudFormation) is a plus.
    - Interest in learning more about system architecture, networking, and server management.
3. General Technical Skills:
    - Basic programming skills, ideally in Python, with an understanding of algorithms and data structures.
    - Introductory knowledge of statistics and data analysis for handling data-driven projects.
    - A willingness to learn and strong problem-solving, debugging, and communication skills.

Applicants should be able to commit to a full-time, in-person role (five days a week, ~40 hours) at BIDMC. Engineering, computer science, mathematics, or related majors are particularly encouraged to apply.

Current projects focus on our group's mental health smartphone app and include: digital phenotyping in smartphone usage for patients with psychosis, and digital phenotyping in college mental health, and running a digital clinic for patients with anxiety and/or depression. For more information, visit our team's website https://docs.lamp.digital/ and at https://www.digitalpsych.org

Interested students should contact the PI, John Torous MD (jtorous@bidmc.harvard.edu) with an attached cover letter and CV.