

Kanjo Health Ltd

Project Title: Developing cognitive, linguistic and wellbeing biomarkers and biometrics from a range of device interaction and sensor data.

Overview

Kanjo is a new and rapidly growing startup at the intersection of health-tech, ed-tech and family-tech. Fundamentally, Kanjo is a mobile application that helps aid communication between both parent and child (aged 6-10) while also developing the child's emotional toolbox, and providing feedback to parents.

More specifically, this means that for the child, Kanjo is the 'Duolingo of mental health' - whereby by engaging with fun activities and games, they also learn the tenets of emotional regulation, resilience and empathy - preparing them for the years to come. For parents, feedback, insights and advice are provided regarding the child's cognitive, linguistic and wellbeing development via the use of digital biomarkers.

This is where you come in.

Project Description

The problem: Almost every parent wishes they understood their children better. This manifests in a broad range of questions and concerns, such as: when is the best time for my child to study, are they getting enough sleep, why are they currently anxious, are their language skills developing well, am I doing an okay job as a parent? We aim to aid parents with all these questions; helping to build a generation of more emotionally resilient, engaged and happier children - and their parents.

Our approach: By providing feedback to the parents about all these facets of their child we intend to make the tough job of parenting easier and even more rewarding. In many cases this is just by opening a dialogue between parent and child, by sourcing advice relevant to their child specifically, or by offering more in depth insights than can be provided by a teacher or guardian. This is achieved through the use of digital biomarkers - health, wellbeing, cognition and linguistic insights derived from the device (smartphone or tablet) sensors while the child is interacting with it.

What you will work on

We are currently focusing on developing our MVP. Our focus has been the full stack app development - however the full product will include backend analysis of sensor data, application of machine learning methods across longitudinal data, and implementation of personalisation algorithms. In preparation for our first users we are aiming to have the initial infrastructure for this complete - to ensure as full an experience as possible from the outset.

The facets of the project:

- Signal processing, feature extraction, and analysis of sensor data (sensors in order of preference: microphone and acoustic analysis, IMU and accelerometry, touchscreen and movement analysis, camera and computer vision)
- Natural language processing (predominantly sentiment analysis and semantic analysis; but open to suggestions)
- Developing longitudinal personalisation models or community similarity models for individual users over time.

The scope of this project is however greatly flexible and would potentially either suit one individual wishing to undertake a range of activities - or multiple individuals.

Who we are looking for

Depending on the project scope, a range of experiences may be useful. However experience with Python is strongly recommended. Although the analysis library and processes will initially be developed locally with dummy data - it will eventually be implemented as part of our cloud infrastructure. Therefore additional experience with node.js and AWS may be helpful but not vital. However most important is fundamental coding skills, excitement about the project and mission, and a desire to learn about - and discuss - the area of digital biomarkers. It is the research field of our CTO and he is greatly looking forward to sharing his experience while learning from you too!

As an Entrepreneur First portfolio company we are currently growing rapidly and the product and company will be evolving throughout your engagement. This will allow substantial creative and intellectual freedom - to explore the area, make the project your own, and have substantial impact on the growing company and product. There is also substantial scope for the development of these insights into even more impactful information and products in the future.

Supervisor Profile

Name: Stefan Bostock

Current Position: Founder & CTO

Linkedin: <https://www.linkedin.com/in/stefanbostock?originalSubdomain=uk>

Reading Material

Material will likely depend on the specifics of the project, however interesting papers related to the field worth a peruse are:

- Robin et al. 2020. Evaluation of Speech-Based Digital Biomarkers: Review and Recommendations. Karger.
- Jacobson, Summers & Wilhelm. 2019. Digital Biomarkers of Social Anxiety Severity: Digital Phenotyping Using Passive Smartphone Sensors. JMIR.