

Our Research:

Many city-dwelling elderly people can be greatly affected after a minor change in their living or health conditions. Mild Cognitive Impairment (MCI), early dementia and frailty are among the most common risks with deep consequences on the elderly people's and caregivers' quality of life. Through the new wave of Information and Communication Technologies (ICT), Internet of Things (IoT) and Smart City systems, it is now possible to help individuals **capture and make use of their personal data** in a way that will help them maintain their independence for a longer period.

The IPAL research team and its partners aim to create an innovative service based on:

- ICT-enhanced early detection of risk related to frailty
- ICT-enhanced interventions that can help the elderly population to improve their daily life and also promote positive behavioral changes

Through real-life pilot sites in Singapore in collaboration with local stakeholders, the IPAL research team explores how data on individual behaviors captured through indoor and outdoor sensors could be used for the **observation and detection** of the following parameters:

- Activity of Daily Living (ADL): nutrition, hygiene, sleep activity
- Mobility: physical activity, going-out frequency and going-out length
- Cognition: forgetfulness, early signs of cognitive decline
- Socialization: senior activity centre visits, activities attended, other places of interests visits

Our focus is to use sensing technologies installed in the elderly's environment (indoor to outdoor) to monitor and detect their activities of daily living. Sensor data that is collected will then be analysed to identify relevant behaviors of individuals, and to detect behavioral changes that can be correlated with risks of MCI/frailty. The appropriate ICT based interventions (e.g. data visualization and alerts to caregivers) will then be applied to mitigate these risks.

The objective of this internship is to make use of this personal data, and create an interface (front-end) for the users (elders themselves, volunteers, relatives, doctors...) to observe the data in their own user experience. For example, the elders will need a really simple interface to check their daily activities performed (possibility of some gamification), the relatives may wish to observe what the elderly people are doing at the moment and some trends of activities performed, while the volunteers will need to detect a risk and potentially interact with the elderly to help in any matter.

About the Internship:

We are looking for a UI Developer to build new user interface features and create an extraordinary web experience for users, volunteers and relatives.

Responsibilities:

- Understand the usages for the platform at each level (elders, volunteers, family)
- Define the interface specifications for each scenario
- Propose an adequate and convenient user experience for each interface
- Build front end components using HTML, CSS (bootstrap), JavaScript
- Design and implement user interface components with right consideration for usability, security, performance and customizability
- Drive consistent end-to-end user experience

Keywords:

Ambient Assisted Living, Social sciences, Public health, Behavioral, Digital health, User experience, Dementia assistance, Real life deployment, Dynamic and adaptable systems, Context aware services

Applicant's profile:

- Knowledge of command line tools, shell, Git or versioning tools (good practices)
- Knowledge of web applications and web services
- Awareness in Digital Health (ICT services for elderly)
- Knowledge of mobile apps development (JS frameworks, native iOS/Android not necessary)
- Systematic approach
- Proactiveness and independence
- Excellent command of English, Chinese (mandarin or dialects) proficiency is a plus

Duration:

The duration of the internship will be of 6 months and the starting date is from mid-February onwards. (Note that the Student Visa application may take time and then delay the starting date).

Gratification: 1500 SGD per month