

RnD + TA work Aug-Nov 2024

Please indicate your preference by filling this <https://forms.gle/iR2bnueomy25Shcc8> by deadline: 23:59 July 31, 2024.

There are mainly 3 projects here:

1. Virtual Lab Content Creation in Security (Network, Software, OS)
2. Virtual Lab Content Creation in Web Development (HTML, CSS, Javascript, PHP, codeigniter, mariadb, Web servers configuration and logging, Firefox developer tools, MERN (Mongo, Express, React, nodejs) stack, React, Django+REST framework, CI/CD pipelines, linters/formatters, postman API, selenium, cypress.
3. Android app for reforestation efforts (of an NGO 14Trees)

The first 2 projects, you can sign up for RnD or TAship. The web development project involves 2 other faculty: Prof. Bhaskaran Raman and Prof. Kumar Appiah (EE). Depending on the topic chosen, you will work with relevant faculty. The 3rd project is only an RnD.

All projects require strong commitment since these will all be “used” by people and we have timelines to meet.

Virtual Lab Content Creation

Platform: The job here is to create lab content for use on the Virtual lab platform. To create lab content will involve being creative in lab design, learning new tools in depth and scripting for auto-grading that complies with virtual labs framework.

Commitment: We hope to release the labs in the public domain for many college students to practise and learn. We expect students taking up these projects to show full commitment and create labs that are complete in all sense (instructions, setup, Q&A, auto-grading).

Requirement: Prior experience in the relevant tools, course and labs or self/internship experience.

Android app for reforestation efforts (of an NGO)

<https://14trees.org/> is a NGO that is looking into afforestation efforts. It is run by ex-IITK Prof and a very successful entrepreneur Pravin Bhagawat. Lot of IIT-B/K alum are also involved. They are looking to build an Android app. Below is a snippet of what they want.

“Number of visitors to the project site (tree plantation site) are steadily increasing. We want to give visitors (who wish to volunteer 1-2 days worth of their time) an app which can be used for useful onsite data collection. Data can relate to auditing location, type and health of trees and or collecting biodiversity survey data. Crowdsourcing of this data through volunteers will not only lend more credibility to data we collect and supply to our sponsors, it will also provide meaningful actionable work to those wish to join us and start contributing. If successful, we envision such an App to reach in the hands of hundreds and thousands of

volunteers within 1-3 years. There are some features which can be **powered through AI also**. It will be fantastic if 1-2 students this semester can seriously take this project up.”

Requirements: Android programming. ML/AI knowledge for image classification. Strong commitment since it is an external facing project, dropping the project in the middle or very little work etc will not do (IITB will get a bad rep). Take it up only if you are really serious and can deliver!