

# IN PURSUIT OF A SMART NATION

Here's a brief guide on the Smart Nation initiative and insights on how you can contribute to the movement.

## What is the Smart Nation initiative?

Officially launched in 2014 by the Singapore government, the initiative aims to implement tech-enabled solutions to improve the way we live, work and play. By harnessing technologies such as info-communications and big data, the initiative intends to create opportunities in the following areas: transportation, the home environment, business productivity, health and enabled ageing, and public sector services.

As several masterplans have been created for the varying sectors with end-goals ranging from the years 2020 to 2030, there are plenty of opportunities for students keen on contributing to the movement. Two SUTD alumni share their insights on the initiative.

## His experience working on Smart Nation-led projects

Working in a company aligned with the Smart Nation initiative involves finding ways to apply technology to improve the lives of others. While we do not deal with cutting-edge research of materials and components, we look into applying demonstrated technology in other areas instead.

What I do on a day-to-day basis at HOPE Technik depends on the current progress of the project as engineers and designers are attached to projects rather than to particular roles. There are also many stages in a project. It starts with working on understanding the problem, followed by an exploration of available technology and potential

## What can you expect from this line of work?

### Andrew Toh

Engineer  
HOPE Technik  
*Engineering Systems and Design, Class of 2015*

HOPE Technik is well aligned with the Smart Nation initiative, having developed numerous technological innovations for its clients since 2006. Andrew Toh met the CEO of HOPE Technik, Peter Ho, at one of the industry nights organised by SUTD. This eventually led to a company tour, an internship, followed by a job after graduation.



solutions. After choosing and refining concepts, we start detailed design and fabrication processes. The project ends with testing and commissioning the product.

### The most exciting part about his work

There is a sensation of working towards a common goal, an ideal of automation and efficiency. This also means that most of the people that we work with and meet are people who really want to bring beneficial change to Singapore and the world.

### Handling challenges

Aside from common engineering challenges, such as designing to

certain required standards, and the weather-proofing and miniaturising processes, there are a whole host of other challenges that we face in trying to bring a product or system into reality.

Also, on a daily basis, we need to understand the customer's needs, find reliable suppliers and partners, while researching and understanding various technologies.

### Advice

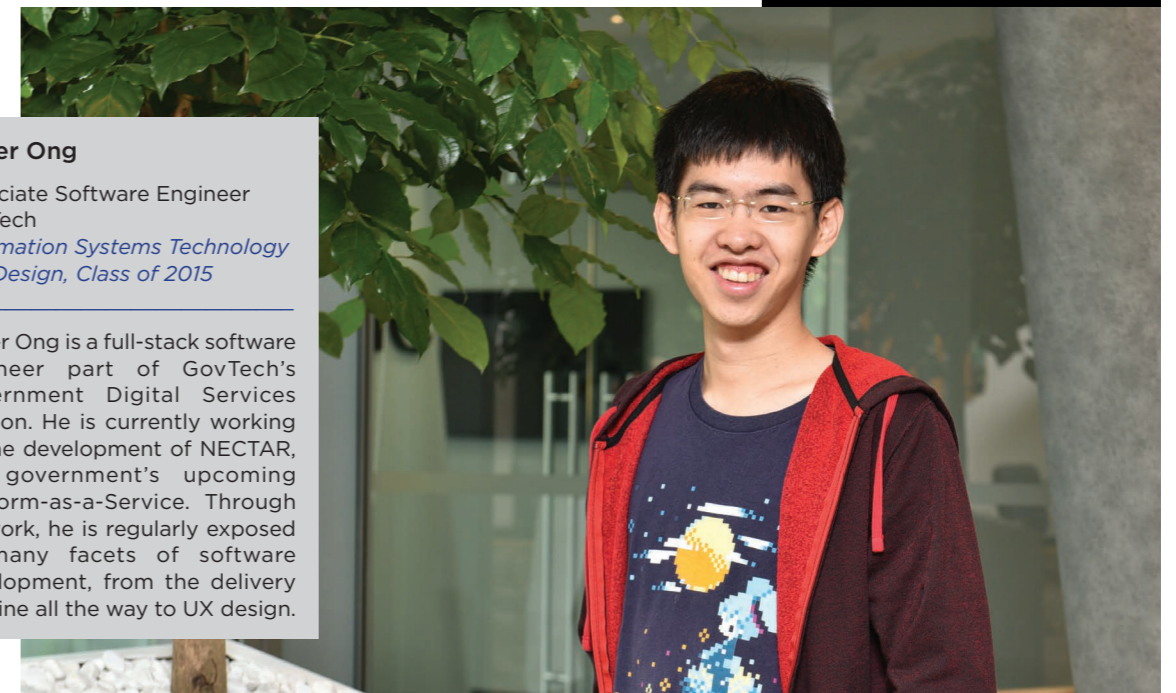
The Smart Nation initiative requires people with various expertise and the best thing to do is to bring passion with you wherever you go, try a variety of things, and to do everything with gusto.

## How can you play your part?

### Roger Ong

Associate Software Engineer  
GovTech  
*Information Systems Technology and Design, Class of 2015*

Roger Ong is a full-stack software engineer part of GovTech's Government Digital Services division. He is currently working on the development of NECTAR, the government's upcoming Platform-as-a-Service. Through his work, he is regularly exposed to many facets of software development, from the delivery pipeline all the way to UX design.



## A wide range of roles to contribute to the Smart Nation initiative

I believe there are a multitude of roles that SUTD students are well suited for at GovTech, where we have a diverse, multi-disciplinary workforce with different skill sets, such as data science, analytics and visualisation, to software development and UI/UX design.

### • Web Developer

As a web developer, you will be in charge of coding, which is both the front-end and back-end of a multitude of web services. In this role, you will experience a variety of technology stacks and will need to determine the most suitable one to deliver a particular digital service. Most teams practise the scrum and agile methodology.

### • UI/UX Designer

In this role, you will be in charge of designing the look and feel of websites and products. You may also be

involved in performing user research through workshops, personas and field studies in order to provide the best user experience. Designers are embedded in project teams and most will work in tandem with developers.

### • Geospatial Engineer

Expect to work on projects such as using GPS for indoor positioning and mapping, using photogrammetry for mesh reconstruction and 3D modelling, and applying VR (virtual reality) and AR (augmented reality) technologies to enhance operational planning.

### • Data Scientist

Bridge the gap between IT and policy/operations, while applying advance computational methods to aid decision support and evidence-based policy making.

You will also need to use data visualisation tools to improve operations and service delivery. An example of its application is Beeline, an open, cloud-based smart mobility platform that empowers commuters to

“crowd-start” and activate more direct, private express bus routes that cater to their travel needs, especially during peak periods.

## Necessary technical and soft skills

Technical skills in fields such as programming, UI design and cyber security are highly required. During university, you can prepare for your career by developing a strong technical background in key domains such as web/app development or security. However, you should always be on the lookout for emerging technologies and maintain your appetite for learning.

Additionally, soft skills such as stakeholder management and project management are also equally important. In many places it is necessary to convince senior management about the value of digitising and improving old processes through technology, before work can be started. ■