

**UNIVERSITY OF  
WESTMINSTER** 



**INFORMATICS  
INSTITUTE OF  
TECHNOLOGY**

**Informatics Institute of Technology**

**Trends in Computer Science**

**4COSC008C**

**Portfolio**

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## 1. Employability and career planning

In today's competitive employment market, employability and career planning are essential components of personal and professional growth. The set of abilities, knowledge, and characteristics that help someone find and keep a job is known as employability. It includes not just technical knowledge but also soft skills like cooperation, problem-solving, communication, and flexibility. Employability is essentially a reflection of a person's ability to adapt to the changing needs of the workplace and successfully contribute to the success of an organisation (Arthur & Rousseau, 2017).

When I was a student, I tried to do the right thing at the right time and worked on assignments on time. I used to separate apart my job, focus on it, and finish it without becoming anxious. Having these habits since I was young has made them far more helpful to me now that I'm planning my future and doing my coursework at the university. I have always been interested in technology, and of all of this, the world of computers has always had a particular place in my heart. I used to be able to access material on a variety of topics, including graphic design and software engineering. I started my higher education at the Informatics Institute of Technology after earning the top scores on both the IGCSE ordinary level and did a foundation course at IIT. After that, I decided to pursue a career in software engineering and got going. Job security, the capacity to use critical thinking to solve intriguing problems, higher earnings, better opportunities, intense competition, a field that is rapidly changing due to technological advancements, increased social recognition, and many other factors are some of the reasons to choose this career path.

In order to improve my future employability and have a profession that would allow me to work happily while pursuing my studies, it is crucial that I set objectives and make plans. It's crucial that I choose computer science as my career path amid so many other options. I am already aware of this field's quick evolution and emerging tendencies.

When talking about how my career planning has been greatly impacted by current developments in computer science. Artificial intelligence, cybersecurity, data science, the Internet of Things, machine learning, and cloud computing are a few of the most significant

themes. My areas of interest are artificial intelligence, machine learning, and the Internet of Things. When it comes to artificial intelligence and machine learning, the field of computing and big data are evolving at a rapid pace, resulting in the replacement of many job opportunities in a variety of industries, including healthcare, transportation (with self-driving cars), and communication (with AI-powered chatbots). Thus, in order to protect my job, I need to be aware of these. I need to get better in machine learning, natural language processing, and a lot of other artificial intelligence-related topics. Another option that I ought to contemplate is machine learning, a subfield of artificial intelligence. I need to get better at creating algorithms so that I can help machines learn and become more capable.

As time goes on, this field is becoming too populated with workers. For instance, compared to previous years, the number of students enrolling in our university's software engineering and computer science degrees has increased. Therefore, I need to have a good strategy if I want to succeed and become a featured figure. I have to carefully select the option modules for it..

I anticipate selecting Mobile application development as an optional module in the second year under the L5 option modules, then selecting Mobile Native Application Development as an optional module in the sixth level. This is because my goal is to become a web developer. Since I'm interested in building mobile apps, this mobile application development is really important to me. My primary focus will be on creating mobile applications for the iOS platform..

We must also enhance our soft skills and primary subject-related talents if we are to meet the aforementioned goals. Events pertaining to employability are crucial for developing our talents. I have participated in several employability-related activities since I am aware of this. One such event that I went to was the Employability and Career Planning session called Industpro, which was facilitated by Mr. Sasanka Dias, Ms. Shinallee Peiris, Ms. Thushanee Illagakoon and Mr. Asela Waidyalankara, which was hosted by our university's IEEE Society. This was a really beneficial and significant seminar for us students who are preparing our future jobs. Apart from that, I've been to a lot of meetings hosted by our university's IEEE Society. Additionally significant was the TCS tutorial session led by Mr. Manul singh and focused on CVs. Apart from that, I've participated in a hackathon held at the institution. In addition, the expertise I gain from Leo Club and Rotaract Club is significant. This session was so important and fruitful for students like us who are planning their future careers. Other than that, I have attended many sessions which were organized by the IEEE Society of our university. The TCS tutorial session regarding the CVs which was conducted by Mr. Manul singh was also important. Other than

that, I have attended a hackathon at the university. Not only that the experience I get from the Rotaract Club and Leo Club is also important.

We need to study and work hard in this subject if we want to succeed. Self-studies are another crucial component.

## 1.1 References

Tino, C. & Fedeli, M. (2022) Career planning, proactivity, self-employability, and labor market: undergraduates' perceptions. *Form@re*. [Online] 22 (1), 262–278. Available from <https://iris.unica.it/bitstream/11584/243934/1/Employability%20and%20Competences%20Innovative%20Curricula%20for%20New%20Professions%202018.pdf>. [Accessed on 4 April]

## 2. Cyber Security



*Figure 1 Cyber-Security-Icon-Concept*

### 2.1 Introduction

The area of cybersecurity is becoming more and more important for securing digital assets and defending sensitive data from online attacks. The need for cybersecurity specialists has increased as a result of the advancement of technology, underscoring the need of comprehending the prerequisites, proficiencies, career paths, and specialisations available in this industry. The purpose of this paper is to examine the role of an expert in cybersecurity, including the education and experience required, career prospects currently available in Sri Lanka, and specialised areas within the sector.

### 2.2 Qualifications and Skills

Professionals in the field of cybersecurity need to possess both practical and academic abilities in order to succeed. A bachelor's or master's degree in cybersecurity, information technology,

computer science, or a similar discipline is a prerequisite. Furthermore, the industry places a high importance on credentials like CompTIA Security+, Certified Ethical Hacker (CEH), and Certified Information Systems Security Professional (CISSP) (Peltier, 2016).

Experts in cybersecurity should have a solid grasp of operating systems, computer languages, and networking protocols. They must possess strong analytical, vulnerability-finding, and security-measure-implementation skills. Working with stakeholders, evaluating risks, and creating mitigation plans all require strong problem-solving, critical thinking, and communication skills (Reed, 2015).

## 2.3 Cyber Security Job Opportunities in Sri Lanka

The expanding digitization of companies and government sectors has resulted in a notable growth in cybersecurity employment prospects in Sri Lanka in recent years. Industry sources state that due to increasing cyber risks and regulatory constraints, there will be a further increase in need for cybersecurity personnel in Sri Lanka (Lanka Secure, 2020).

### **Common job roles in cybersecurity in Sri Lanka include:**

- **Security Analyst:** In charge of keeping an eye on networks, evaluating security events, and quickly addressing dangers.
- **Ethical Hacker/Penetration Tester:** Carries out controlled cyberattacks to find holes in applications and systems.
- **Security Engineer:** Creates, puts into practice, and oversees security solutions to shield company assets from online attacks.
- **Security Consultant:** Offers organizations professional guidance and suggestions for strengthening their cybersecurity posture.
- **Incident Responder:** Investigates security events, plans the appropriate course of action, and carries out corrective action.

## 2.4 Specializations within Cyber Security

Cybersecurity is a broad field with several subfields that concentrate on different facets of safeguarding digital assets and fending off cyberattacks. Among the noteworthy specialisations are:

1. Network Security: Focuses on protecting devices, communication protocols, and network infrastructure to stop illegal access and data breaches.
2. Cloud Security: Involves protecting cloud-based apps and services and guaranteeing the availability, confidentiality, and integrity of data in cloud settings.
3. Application Security: Focuses on using code review, testing, and secure coding techniques to find and fix security flaws in software applications.
4. Digital Forensics: Includes gathering, examining, and presenting digital evidence in order to support legal actions and conduct criminal investigations.
5. Cyber Threat Intelligence: Involves obtaining and evaluating threat intelligence in order to spot new trends, cyberthreats, and attack strategies. This allows organisations to proactively guard against these risks.

Specializing in a specific area of cybersecurity allows professionals to deepen their expertise and contribute effectively to addressing specific security challenges within organizations.

## 2.5 Conclusion

An professional in cybersecurity must possess a variety of credentials, abilities, and in-depth knowledge to effectively safeguard digital assets and counteract cyberthreats. The need for cybersecurity experts is growing in Sri Lanka, which offers a wide range of employment options. Through the acquisition of requisite certifications, development of fundamental skills, and



exploration of specialised areas within the discipline, individuals may embark on fulfilling careers in cybersecurity and significantly enhance the security posture and resilience of organisations.

## 2.7 References

Lanka Secure. (2020). Cybersecurity Workforce Development Roadmap for Sri Lanka.

Retrieved from <https://www.lankasecure.lk/images/Docs/CSWF/Cybersecurity-Workforce-Development-Roadmap-for-Sri-Lanka.pdf>

Peltier, T. R. (2016). Information Security Policies, Procedures, and Standards: Guidelines for Effective Information Security Management. CRC Press.

Reed, C. (2015). Security for Web Developers: Using JavaScript, HTML, and CSS. O'Reilly Media.

## 3. CV and Cover letter

### 3.1 CV



# Esitha Jayasundara

BEng in Software Engineering

## Skills

- Java
- JavaFx
- Python

## Languages

- Sinhala
- English

## Hobbies

- Watch movies
- Play Cricket
- Read books

## About Me

I am Esitha Jayasundara, currently I'm doing a software engineering degree at IIT, my future plan is to be a software engineer. I went to Lyceum International School. I did OLS and then after that I started to do a foundation course at IIT in September 2022.

## Education

- University of Westminster (IIT Sri Lanka) 2023 – Present
- IIT Foundation 2022 – 2023
- Lyceum International School

## References

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## 3.2 Cover Letter

Esitha Jayasundara

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0762008331/0771030877

04/09/2024

Dear Sir,

I am writing to express my interest in the software engineering position advertised on social media (linkedin). As a recent graduate with a Bachelor's degree in Software engineering and a passion for software development, I am excited about the opportunity to contribute to HCL and embark on a fulfilling career in the field of software engineering.

While my professional experience is limited, I have completed several projects during my academic studies that have equipped me with foundational knowledge and skills in software development. For example, I collaborated with a team of classmates to design and implement a web-based application for managing inventory in a small business. This project allowed me to gain hands-on experience with full-stack development, including frontend design using HTML, CSS, and JavaScript, as well as backend development with Python and Django.

Additionally, my coursework has provided me with a solid understanding of software engineering principles, algorithms, data structures, and object-oriented programming concepts. I am proficient in programming languages such as Java, C++, and Python, and I am eager to continue learning and expanding my technical expertise.

What excites me most about the opportunity to join HCL is the chance to work with a team of talented professionals and contribute to innovative projects that have a real impact. I am drawn to HCL's commitment to [mention any specific company values or projects that resonate with you], and I am eager to bring my enthusiasm, creativity, and problem-solving skills to the team.

Furthermore, I am highly motivated to learn and grow as a software engineer, and I am committed to continuously improving my skills and staying abreast of industry trends and best practices. I am confident that my strong work ethic, attention to detail, and ability to work collaboratively in a team environment make me a valuable addition to HCL.

Thank you for considering my application. I am enthusiastic about the opportunity to discuss how my background, skills, and passion for software engineering align with the needs of HCL. I am available for an interview at your earliest convenience and can be reached at 0762008331/0771030877 or [esithajayasundara@gmail.com](mailto:esithajayasundara@gmail.com).

Sincerely,

Esitha Jayasundara

## 4. GenAI reflection



*Figure 2genai-analytics*

### 4.1 Reflection on Generative AI Tools

ChatGPT and other generative AI technologies have the ability to completely transform the way we work and learn by enhancing human talents and automating repetitive chores. I envisage using such tools having a number of important effects on my academic and career goals.

- I. Transformation in Study and Work Dynamics: Because they can create original material, automate tedious activities, and provide us quick access to knowledge, generative AI technologies have the potential to completely change the way we work and learn. These tools, for example, can help with data analysis, come up with suggestions for research subjects, and summarise publications in order to support the literature review process in academic research. Similar to this, in work environments,

these technologies help expedite duties like content production, customer support, and report authoring, freeing up time for more important pursuits.

- II. Utilization of Generative AI Tools for Studies: I have used ChatGPT and other generative AI technologies for a variety of applications as a researcher and student. For example, I have used ChatGPT to clarify difficult topics, come up with ideas for articles or research papers, and even get comments on drafts of my work. ChatGPT can also act as a virtual tutor, offering clarifications and responding to inquiries about academic subjects or course materials.
- III. Ensuring Academic Integrity: When using generative AI techniques, academic integrity must be upheld in order to avoid plagiarism and comply with institution policies. It's critical to distinguish content created by AI from original work in order to preserve integrity. To maintain accountability and openness, sources must be properly cited and referenced, including any contributions made by AI tools (Park, 2003).
- IV. Ensuring Trustworthiness of Results: It is crucial to assess the outputs of generative AI applications attentively and cross-reference them with reliable sources in order to guarantee the reliability of the findings. Furthermore, fact-checking and peer review procedures may be used to confirm the dependability and correctness of information, which can support the validation of created content's legitimacy (Adadi & Berrada, 2018).
- V. Mitigating Inequalities: If not used appropriately, generative AI techniques might make inequality worse. It is critical to take into account the ethical implications of AI algorithms and make sure they are designed and implemented in a fair and inclusive manner in order to reduce this danger. This entails resolving biases in training data, encouraging diversity in AI R&D, and cultivating accountability and openness in AI applications. (Neil, 2016).

## 4.2 Conclusion

In conclusion, generative AI technologies provide fascinating chances to improve efficiency, inventiveness, and productivity in learning and professional settings. But it's crucial to utilise them carefully, committed to maintaining academic integrity, making sure outcomes are reliable, and reducing any possibility for inequality.

### 4.3 References

Adadi, A., & Berrada, M. (2018). Peeking Inside the Black-Box: A Survey on Explainable Artificial Intelligence (XAI). *IEEE Access*, 6, 52138-52160.

O'Neil, C. (2016). *Weapons of Math Destruction: How Big Data Increases Inequality and Threatens Democracy*. Crown.

Park, C. (2003). In other (people's) words: plagiarism by university students--literature and lessons. *Assessment & Evaluation in Higher Education*, 28(5), 471-488.