Rachel Kerr

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I am a highly committed and hardworking student who is determined to solve any challenges or tasks. I am open to learning and developing new skills as part of my personal development.

EDUCATION

University of Essex, **Colchester, Essex — *BSc Computer Science***

OCTOBER 2020 - JULY 2023

First year modules: Team Project, Programming [Python], Object-Oriented Programming [Java], Mathematics, Databases, Networks , Web Development and Digital Systems.

Second year modules: Team Project, Software Engineering, Application Programming, Data Structures and Algorithms, Artificial Intelligence, Computer Security, C++ Programming and Operating Systems.

Third year modules: Final Capstone Project, Advanced Programming [Java], Natural Language Engineering, Computer Vision, Large Scale Software Systems & Extreme Programming and Network Security.

Grade achieved: First Class Honours

Invicta Grammar School, **Maidstone, Kent — *A-Levels***

SEPTEMBER 2018 - SUMMER 2020

Computer Science - B, Product Design - B, Mathematics - D

St Simon Stock Catholic School, **Maidstone, Kent — *GCSE'S***

SEPTEMBER 2013 - SUMMER 2018

Ten GCSE'S Grades 8-5 (including Maths and English)

TECHNOLOGIES

Microsoft Office Suite
Jira
Git
Trac
SVN
Python
Java
C++
Golang
HTML5
CSS
JavaScript
PHP
SQL
Cisco Packet Tracer
Unix
Nessus
Metasploit
Snort
Splunk

EXPERIENCE

Firemind, **Maidstone, Kent — *Work Shadowing***

JULY 2019

Shadowed a front-end developer working on datasets.
Worked with another intern on website development with HTML, CSS, and JavaScript, making a registration form, animated cards, a loader, and an animation using keyframes.
This has given me a better understanding of what it's like to be a front-end developer and the experience has improved my teamwork and web development as well as code optimisation.

TECHNICAL SKILLS

Python

I have developed various applications such as GUIs made with tkinter and created a driving simulator game that interfaces with a micro bit for the user to control their car and Panda3D for the engine. A demonstration of this can be seen on my GitHub. I have also coded various machine learning programs with TensorFlow.

Java

I have programmed using different kinds of data structures & algorithms and a basic AI to go against a user in a 5x5 grid of tic-tac-toe. Collaborated with a team to develop a COVID-19 modelling and forecast program which takes data from CSV files and is converted to be read and visualised easily using an interactable GUI with a dynamic graph and buttons. The forecast is predicted using linear regression.

C++

Implemented object-oriented programming principles to code a hangman game for an assignment.

SOFT SKILLS

Teamwork and Communication

In the first year of university during the COVID-19 pandemic, I had to undergo a team project communicating online using Zoom and organising work through JIRA. During this I learned to lead and communicate within a team in order to balance out tasks and get the work done efficiently. This has improved my skill in people management as well as being more vocal.

Problem solving

Whilst programming I have come across many bugs in my code that I have fixed by methodically breaking down each part of the code to recognise what the issue was and troubleshooting to find a more efficient way to solve it.

I also spend time working on my cyber security skills working on various challenges such as capture the flags. This has improved my critical thinking to solve challenging puzzles involving steganography and cryptography.

Time management

I manage my time effectively by having a schedule that allows me to keep track of all activities I do in a day such as work, gym, cooking food, social activities, gaming and getting a healthy amount of sleep.

Adaptability

Going from living with parents to being independent has given me the ability to adapt into a different environment and take responsibility in doing daily tasks.

ACHIEVEMENTS, EXTRA-CURRICULAR ACTIVITES & INTERESTS

Final Capstone Project – Secure APIs for Web Services

APIs are critical to secure by developers and organisations. They are the main form of communication in microservice applications which are becoming increasingly popular because of their maintainability, flexibility, and scalability. For my project, I have used Prometheus as a case study, a popular monitoring and alerting tool and have deployed this onto Kubernetes. I detected a potential vulnerability and developed a man-in-the-middle (MITM) attack which is deployed on Docker to manipulate HTTP requests sent to the API. To mitigate the risk of the attack, I then developed an alarm application and deployed this on Docker. This application monitors the data returned by the API and flags any suspicious data, providing a real-time response to potential security threats.

Cisco Certified Network Associate 1 (91%)

I have completed this networking course and achieved 91% in the final exam. This has introduced me to using packet tracer and has taught me how to configure networks, routers, and switches.

Cyber Security

During sixth form I was introduced to the cyber discovery programme providing me with resources to learn about security concepts which engaged my initial interest in cyber security and tested my computational thinking. I worked through various challenges which has expanded my knowledge in various areas of cyber security such as web exploitation, cryptography, forensics, etc. Continuing into university, I have taken security specialised modules building up my knowledge about security fundamentals, encryption, network architecture and much more. I have also established skills such as configuring firewalls, monitoring with SIEM software such as Splunk and vulnerability scanning with Nessus and Metasploit. Over the summer I have completed the Immersive Labs Defensive SecOps program which has consolidated my existing knowledge whilst also introducing me to new concepts such as the MITRE attack framework and the cyber kill chain.

Computer Science and Electronic Engineering Society

In my second year at university, I became an executive of the CSEE society as the role of COVID Officer where I ensure members follow guidelines at events and carry out any risk assessment and operating procedures needed to make sure all members are safe. In late January 2022 we planned a Hackathon for society members to create a game.

Football & Bouldering

I have played for my university's second team in woman's football which has improved my teamwork and communication skills as well as keeping me fit and healthy. I also go to a bouldering gym on a regular basis to build physical strength and develop a positive mindset for my mental health. Additionally, bouldering has improved my problem-solving skills as it is required when analysing and reading a route to climb as efficiently as possible to reach the top.

***References: Available on request**