**Dear Hiring Manager,**

Graduating with a first rank in Bachelors of Engineering in Computer Science and working for four years as an R and D engineer stimulated my interests to pursue Masters at University of Southern California. In the process of job search, I was delighted to see the job id: 123-456-789 mentioned in the Amazon official website. I am interested in the areas of distributed systems and working in the Prime videos team that employs this technology will aid my long-term professional career.

Currently, I work as an Intern at “xyz” in software defined networking solution for cloud-based systems. The underlying principle for the product is distributed systems. I got the opportunity to develop an automated testing framework for the product using python programming. In the process I gained familiarity with the AWS environment, docker, kubernetes and ramped up on the networking concepts. I had hands on experience deploying the required docker image across all the test machines and put to test the newly developed code.

At USC, I studied a variety of courses such as artificial intelligence, advanced algorithms, natural language processing and database systems, that quadrupled my knowledge. As a part of my AI course work on developing a gaming agent in C++, I realized the importance of providing timely decisions by exploring a vast search space. It also gave me a big picture to extend the concepts to distributed systems as well.

Additionally, I diligently worked as an R&D Engineer for four years at “pqr” in the areas of distributed storage systems using the agile framework. I thoroughly understood the concepts of CAP theorem and its usage in the enterprise class products. I also had the opportunity to work in the areas of data-path which helped me understand how small changes can impact the performance of the system. Additionally, it was good to understand how distributed systems helped in making the system more reliable by inducing redundancy. During my work I kept myself up to date by proactively researching on the topic in the field. To add, I filed six patents in the areas of distributed systems and storage. I also explored options of combining the trending topics of machine learning to distributed systems to improve the reliability, availability and performance of the system. I received accolades from my manager for my hard work for the extra mile that I put forward to satisfy our customers.

Furthermore, I have demonstrated my design skills to improve the architecture which is one of the skills that any software tech professional must possess. I was able to demonstrate this in one of the projects that comprised of backing up virtual machines from one product to another. By maintaining a queue that were operated by several threads, backups were completed. Thought provoking exception paths (ex: system restart/shutdown) were thoroughly designed.

Having the relevant work experience I request you to please consider my candidature for aforementioned job. I assure you that I possess the necessary technical and communication skills to take Amazon to greater heights. I am available on my cell phone (xxx)-xxx-xxxx to answer questions you have about my experience.

**Best Regards,**

**Abhijith Umesh**

**The pros and cons of contact tracing applications in the evolving COVID-19 pandemic**

Today the world is baffled by the evolving ‘Coronavirus Disease’ (COVID-19). Everyday thousands of people are getting infected by the novel virus and the growth rate of the disease is exponential. All sectors of the society have been affected and normal life of the people is thrown out of gear. The disease gets transmitted from one person to another and has an incubation period of fourteen days that makes the transmission concealed. It can be curbed by tracing the contacts [1] of the people affected by infection and advising home quarantine to stop further spread of the disease.

Historically, contact tracing happened manually, where humans performed the detective work of finding and breaking the transmission chains during outbreaks of contagious diseases such as measles and plague. However, only family, friends and co-workers can be traced by this method and it is difficult to identify the contact that occurred while standing in the grocery store lines or dining at restaurants.

There are several mobile applications developed around the world to perform contact tracing and one such application that has been developed in India is “Aarogya setu” [2]. On a downloaded application, short-range Bluetooth signals known as chirps are emitted and other nearby phones running the app pick them up. If a person tests positive for the coronavirus, he can then upload the test results to a public database. Other people who were in contact with the infected person would then be notified when their phones pick up the chirps, alerting them about the possible exposure to the virus. Public health officials will then give direction about the appropriate course of action, which may include symptom checking, test seeking or self-quarantining. This app is a great resource to put a check on the spiraling disease.

However, these apps also have some privacy and security vulnerabilities. Cyber attackers have access to personal information such as name, SSN, health status and location data of millions of customers which are highly sensitive. Cybercriminals can further use this information for performing fraudulent activities like paying bills, indulging in online transactions, and transferring money out of victims’ bank accounts. Additionally, the attackers sketch phishing attacks on educational institutions by pretending to be officials, professors or students of an academic institution.

All the aforementioned disadvantages have motivated me to develop an application that overcome these drawbacks. I want to contribute my technical skills to the society by building applications that store data in an encrypted format and do not put user’s data at stake.

**Footnote:**

[1] Luca Ferretti et al. Quantifying SARS-CoV-2 transmission suggests epidemic control with digital contact tracing, DOI: 10.1126/science.abb6936, March 31, 2020, 7

[2] Ajaya K. Tripathy et al. EasyBand: A Wearable for Safety-Aware Mobility during Pandemic Outbreak, DOI 10.1109/MCE.2020.2992034, IEEE Consumer Electronics Magazine, 2

**Bibliography:**

[3] Ken T.D Eames and Matt J Keeling: Contact tracing and disease control, 16 October 2003