SHUSHANTH MADHUBALAN

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EDUCATION

Stony Brook University February 2021 – Present
Master of Science in Computer Science
Course work: Analysis of Algorithms, Network Security, Probability and Statistics for Data Science, Visualization
TA: Under Prof. Christopher Kane for the course CSE-215(Foundations of Computer Science)

Pune Institute of Computer Technology, Pune, India May 2018
Bachelor of Engineering: Information Technology CGPA: 9.2/10

PROFESSIONAL EXPERIENCE

1. **Name of Company:** RackWare Technologies Private Limited, Pune, India
Duration: July 2018 to January 2021
Title: Software Engineer
Duties:
   - Worked on Feature Development for the product RackWare Management Module (RMM), backed by extensive research and clear documentation.
   - Worked on Code Quality Maintenance by adding enhancements, and fixing bugs seen both at in house QA runs and customer sites.
   - Worked around cross cloud migration bugs particularly across Microsoft Azure, Oracle Cloud Infrastructure, SoftLayer, AWS, Google Cloud for both Linux and Windows; major code enhancements in the transfer of file attributes and driver injection process for Windows migrations, enhancements in RMM Flex Sync component for quicker migrations, improvements in REST API implementation.

Projects:
Title: Import Export Feature for Images **Duration:** From May 2019 to October 2019
Details:
   - Designed and developed a feature to allow exporting of "captured" images of Virtual Machines into a tar, and importing these images on another RMM, in order to use them for deployment and migrations.
   - Target of high performance using ZFS send/receive was achieved. Target of better user experience of the feature by reporting progress of ZFS, tar commands and pre-requisite checks with appropriate messages was also achieved. One of the most important features in Hybrid Cloud Management Suite of RMM.
   - **Technologies used were C++, Python, ZFS send/receive, ZFS snapshotting, tar, md5sum.**

Title: RackWare Selective File Back Up and Restore **Duration:** From July 2020 to September 2020
Details:
   - As a part of this feature, a user can have multiple backups (versions) of a particular virtual machine and restore specific files/directories to a particular version. The file/directory and the corresponding attributes can be restored at the original location of the file or any location of the user's choice. This was done for both Linux and Windows environments. Technologies user were C++, Shell Scripting and ZFS snapshotting.

Title: RackWare RMM Installer Revamp **Duration:** From October 2020 to December 2020
Details:
   - Revamped the self-extracting installer to make it partially unattended. This was done by reducing the number of the user inputs by performing validations on current configuration before taking a user input in an upgrade scenario.
   - This also involved shifting of all user inputs to the beginning of the installer so that time consuming processes like extraction are performed only after the user provides all inputs. **Technologies: Make Self – self extracting archive, Shell Scripting .**
   - **Underwent training from December 2017 to April 2018** - explored and implemented various tools used in RMM product operations – Linux LVM, Windows VSS, Windows WMI Queries, rsync, samba, fdisk, diskpart, Google Protobufs, socket programming, and ZFS. Presented the concepts in front of the entire team.

2. **Name of Company:** Dell EMC, Pune, India
   Duration: September 2017 – April 2018
   Title: Project Intern
   Duties:
   - Worked on designing and developing final year project titled "Isilon Password Protect", a one of its kind password storage and authentication provider based on FreeBSD. It is capable of storing credentials and X.509 certificates for various Open Source Applications in an encrypted database.
   - The passwords, stored as salted hashes were hashed using state of the art memory-hard functions provided by Sodium's Argon2. Each password had a separate salt. In addition to this, the key used to encrypt the database was stored externally. Worked on developing the code for create and update database operations and integrating the provider with Apache HTTP Server by creating a custom module. Developed using Advanced C, Sodium Cryptographic Library, MySQL.

ACADEMIC PROJECTS

- **Title:** Plug Board Proxy; April 2021- May 2021
  Details: Developed a utility using Go that acts as a plug board proxy for adding an extra layer of protection to publicly accessible network services which can act in client mode as well as reverse-proxy mode. The data is encrypted using AES-256 in GCM mode.

- **Title:** DNS Poisoning Tool and Network Traffic Sniffer; February 2021-March 2021
  Details: Developed a utility using Go that can capture the traffic from a network interface in promiscuous mode and can inject forged responses to selected DNS requests with the goal of poisoning the cache of the victim's resolver.

- **Title:** VM Clone Compare; October 2019 –December 2019 [https://github.com/sushanth271/VMCloneComparer]
  Details: Developed a utility that discovers compute, network and storage aspects of two Linux/Windows virtual machines and determines if they're clones of each other. Worked mainly in Python, Shell Scripting.

- **Title:** Android App and Web Application Development; May 2017 [https://github.com/sushanth271/Ethan2]
  Details:
  - Created a Website and Android app for handling Customer Relationship Management of a reputed training institute. This app prompts user to enter his/her details and choose a course for enquiry. Details of the course are sent to the customer via email and Text Message. Admin can also manually push emails/text messages.
  - Technologies used: HTML, CSS, Bootstrap, PHP, JavaScript, and MySQL.

- **Title:** Rent4Sure; September 2016 [https://github.com/sushanth271/Rent4Sure]
  Details:
  - Designed a portal that enables people to list, find and rent vacation homes.
  - While hosts can upload details of their properties, tenants can look for properties available on rent for a specific period of time ranging from a few days to few weeks. Developed using HTML, CSS, JavaScript, PHP, MongoDB.

TECHNICAL SKILLS

- **Programming** : Python, C, C++, Shell Scripting, Go, HTML, CSS, JavaScript, PHP, D3.JS
- **Clouds** : Basics of Microsoft Azure, AWS, Oracle Cloud Infrastructure, IBM SoftLayer, Google Cloud Platform.
- **Database**: MySQL, MongoDB, SQLite

CO-CURRICULAR ACTIVITIES

- Completed Python Data Structures course by Univ. of Michigan with a score of 98%.
- Participated in the Workshop on "Introduction to Scientific Computing" by IIT Bombay and secured "AA" grade.
- Microsoft Certification: Have been awarded with the Microsoft Certification - Microsoft Technology Associate in Security Fundamentals with a score of 83% in the exam conducted by Microsoft.