

Pooja Rajan

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EDUCATION

University of Southern California

Master of Science in Computer Science (Computer Networks)

Los Angeles, California, USA

Jan 2019 – May 2021

SRM Institute of Science and Technology

Bachelor of Technology in Software Engineering

Chennai, Tamil Nadu, India

Jul 2014 – May 2018

TECHNICAL SKILLS

Languages: C/C++, Python, MySQL, NoSQL, Java **OS:** Windows 10, Ubuntu 16.04, RedHat 7.4

Web Development: HTML/CSS, Bootstrap, PHP, JavaScript, JQuery, AJAX, RestAPI, ReactJS

Developer Tools: GCP, Atom.io, CrypTool 2, Solr, GitHub, Eclipse, VS Code, Rational Rose, Draw.io, JUnit, BlueJ

Libraries & Packages: hashlib, mymerkle, pyaes, pickle, IP-API, Google GeoCode, forecast.io, Tshark, Wireshark, netdb.h, netinet/in.h, sys/socket.h, arpa/inet.h, sstream.h, NetworkX, JSoup

EXPERIENCE

Software Intern

Jun 2018

Computer and IT Department – Bhilai Steel Plant

Bhilai, Chhattisgarh, India

- Implemented PageRank algorithm using JSoup & NetworkX in an already existing Solr-PHP based Search Engine.
- Compared the ranking of pages displayed for the above-performed PageRank against the already-existing Lucene.
- Also implemented Norvig's Spelling Correction Program to enhance the spell-correction feature.

Vocational Trainee

Jun 2016

Integrated Control Systems Department – Bhilai Steel Plant

Bhilai, Chhattisgarh, India

- Generated public and private keys for the users by applying the RSA key generation algorithm that uses the Miller-Rabin primality test.
- Implemented AES-128 encryption using pyaes to encrypt the user's files for secure transmission.
- Encrypted the AES keys using the receiver's public key so as to ensure the secrecy of the encrypted file.

PROJECTS

Secure E-Voting System | Python, RSA Encryption, Merkle Tree Hashing, SHAKE-256

Jan 2020 – Apr 2020

- Registers the voters with a unique ID using SHAKE-256 and also generates public and private keys for that voter.
- Creates a unique ballot for the voter to cast his vote that is encrypted by RSA algorithm using the voter's private key and decrypted by his public key while counting and auditing.
- Uses SHA-256 and Merkle Tree Hashing to store the votes for each candidate so that no tampering can be done.

Delay Calculation System | C++, TCP and UDP Sockets, Static and Dynamic Ports

Sep 2019 – Dec 2019

- The Client sends an ID and the size of a transmitted file to the Main Server over a TCP connection.
- The Main Server then uses a UDP connection to search the ID in the Database Server and if found, sends further data about the file to the Calculation Server to estimate the various delays in the network.
- A Monitor connected to the Main Server over TCP tracks all the events happening across all the servers.

DarkSky | PHP, JS, HTML, CSS, Bootstrap, XML, JSON, GCP App Engine

Oct 2019 – Nov 2019

- A PHP-based website that takes an address input from the user. The current location is fetched using IP-API.
- It returns a current weather report for the above location along with a week's forecast using the APIs, Google GeoCode and forecast.io. It also displays a graph depicting the hourly temperature across the day.

PUBLICATIONS

Intelligent Wireless Sensor Networks for Precision Agriculture

Feb 2020

https://doi.org/10.1007/978-981-15-0199-9_15

D.Anitha, V.Shelke, C.G.Anupama, P.Rajan. "Intelligent Wireless Sensor Networks for Precision Agriculture." In: Advances in Intelligent Systems and Computing, Springer, Singapore vol.1056, pp.167–181.

Key Management for Enabling Security against Insider Threats in Body Area Networks

Mar 2018

<https://acadpubl.eu/jsi/2018-118-20/articles/20b/46.pdf>

C.G.Anupama, D.Anitha, P.Rajan. "Key Management for Enabling Security against Insider Threats in Body Area Networks". In: International Journal of Pure and Applied Mathematics vol.118 (No.20B), pp.1021–1027.