

# BALASUNDARAM AVUDAI NAYAGAM

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## EDUCATION

### University of North Carolina at Charlotte, North Carolina

Master of Science, Computer Science

Expected May 2021

GPA: 4.0

Graduate Coursework: Algorithms and Data Structures, Web Programming, Cloud Computing, Knowledge Discovery & Data Mining, Software System Design and Implementation, Mobile Application Development, Computer Networking, Intelligent Systems and Applied Databases

### Anna University, Chennai, India

Bachelor of Engineering, Computer Science Engineering

May 2017

GPA: 3.7

## SKILLS

**PROGRAMMING LANGUAGES:** Python, JavaScript, Java, C, C++, TypeScript, HTML5, CSS, SQL, Shell Scripting

**DATABASE:** MySQL, Oracle SQL, NoSQL- MongoDB, Firebase Real-time Database

**TECHNOLOGIES & TOOLS:** React, Node.js, Angular, React Native, Android, Web Services, Spring boot, Bootstrap, Django, Hibernate, Firebase, Material UI, AWS EC2, Flask, AWS RDS, Putty, jQuery, XML, Scikit-learn, Google Cloud and Git

**OPERATING SYSTEMS:** Linux (Ubuntu, CentOS), Mac OS, Windows

## WORK EXPERIENCE

### Software Engineer Intern, Precise Software Solutions, Maryland, US

May 2020 – Present

- Worked on a Research-based project dealing with designing Counterfeit Drug Detection System to detect the authenticity of drugs.
- Designed **Wireframe** architecture diagrams and user stories for the React Web Application and React Native Mobile App using draw.io
- Developed a Single Page Web application using **React**, **Context APIs** and **Firebase** enabling the Administrator to have control over the detection process starting from entering drug information to detecting the authenticity of the drug in an Agile oriented approach.
- Developed a module in the Mobile app using **React Native** which takes in the Training information along with the Drug Images, performs data augmentation and prediction using the Python script in **AWS EC2** instance.
- Handled all data flow and performed **CRUD** operations on the Drug data in Firebase real-time database and Storage, interacting with the Training model in AWS EC2 instance and performed unit testing for the application.
- Implemented User Authentication using Firebase Authentication and used **AWS S3** for deploying the web application on the Internet for real use.

### Software Engineer (Full Stack Developer), Cognizant Technology Solutions, Hyderabad, India

Feb 2018 – July 2019

- Developed **RESTful** Web services for Trial Management Application Handling Clinical data that generate reports for the Clinical Data Managers to track and manage trials (Technologies and Tools used: *HTML, CSS, JavaScript, Angular, Node.js, MongoDB, Oracle Life Science Hub and Git*)
- Developed Front-end using **Angular** and a logging system for all the login and access details and backed the logging details in **MongoDB**.
- Performed Systems Analysis, Software Development, **Unit testing**, Software Quality Assurance and Maintenance for the Web Services.
- Handled Knowledge Transition sessions to new employees; prepared and conducted training on project specific practices.
- Acquired **GIT** responsibilities and worked as a team in an **Agile** workflow with daily standup meetings.

### Software Developer Intern, Cognizant Technology Solutions, Chennai, India

Oct 2017- Dec 2017

- Creating various custom Web components for a Clinical Trial management system such as Login APIs for form authentication, Subject registration
- Implemented Frontend with JavaScript, HTML, CSS and integrated with the Backend- Oracle SQL

## ACADEMIC PROJECTS

### EULA Analysis Tool - *React.js, Context API, Flask and Material UI*

August 2020

- Developed a Responsive Web Application using React.js and Material UI that takes a EULA file and analyzes the clauses as 'Acceptable' or 'Problematic' using XLNet Pretraining method for NLP implemented on a Flask server, for the **GSA 2020 Code Challenge**
- Used Context APIs for managing the state of all clauses and their respective scores, and deployed the application on AWS S3 for submission

### COVID-19 Tracker Application - *React.js, Firebase and Material UI*

May 2020

- Developed a Single Page Responsive Web Application using React.js and Material UI that provides daily count of Corona Virus cases worldwide along with graphical representation using Maps and Charts fetching data from disease.sh API service
- Enables the user to choose the country to view the number of COVID cases in the respective countries

### E-shopping Website - *Node.js, Express and MongoDB*

March 2020

- Developed an e-shopping website where users can create accounts, add items to their cart, purchase an item using Node.js, MongoDB and used JSON for processing the data request and response. Payment mechanism was implemented with the help of Stripe API
- Technologies & Tools used were *Node.js, Express, MongoDB, HTML5, SASS, Bootstrap, GIT*

### Project Management Application - *Spring Boot, Hibernate, Thymeleaf, PostgreSQL*

January 2020

- Developed a Web application with RESTful APIs where managers of an organization can allocate resources for a project- assign employees, manage project budget etc. using Spring MVC framework and deployed the application implementation on AWS EC2
- Technologies & Tools used were *Spring Boot, Hibernate, Thymeleaf, PostgreSQL, Docker, HTML5, JSON, GIT*

### Tech Meetup Website - *Node.js, Express and MongoDB*

December 2019

- Developed a Responsive Website for a meetup company with APIs where users can explore various tech events, create account, book for events, rate events and maintain event cart for future events using Node.js, MongoDB and used JSON with jQuery for data request and response processing
- Technologies & Tools used were *Node.js, HTML5, CSS, Bootstrap, jQuery, MongoDB, GIT*

### Comparative Analysis of Deterministic Sorting Algorithms using Data Structure and Algorithms in Python

September 2019

- Implemented a comparison of different Sorting Algorithms (Quick sort, Merge sort, Bubble sort and Insertion sort) on different sized datasets with different constraints e.g. number of iterations, Complexity and CPU consuming problem, and retrieved and visualized the runtime of sorting algorithms under different inputs (sorted input, reversely sorted and unsorted input data) to determine which algorithm performs better with different variety of data