

Pankaj Kumar Rathi

Master of Computer Science
University of Ottawa

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EDUCATION

University of Ottawa
Master of Computer Science

Ottawa, Canada
Sep 2021- Present

Sahyadri College of Engineering & Management
Bachelor of Engineering, Computer Science Engineering;
CGPA: 8.95/10.0
Relevant Coursework: Machine Learning; Cryptography, Network Security
and Cyber Law; Internet of Things and Applications; Python Application;

Mangalore, India
May 2015- Dec 2019

Mahesh Pre-University College
Higher Secondary Education
Percentage: 93.34%
Physics; Chemistry; Mathematics; Computer Science.

Mangalore, India
May 2013 – May 2015

SKILLS

Software Skills: Microsoft Visual Studio 2017, MATLAB 8.3, Toad, MySQL Workbench 8.0 CE, MongoDB Compass.

Programming Languages: C, C++, JAVA, JavaScript, Angular, Python, Android Studio (Beginner).

Engineering: Database Management System, Data Structures, Object-Oriented Modeling and Design, Public Key Cryptography, OpenGL, Machine Learning, Python Programming, TCP and UDP connections.

Languages: English, Hindi & Kannada (Native).

WORK EXPERIENCE

TVS Motor Company Ltd. – Bengaluru, India

Senior Executive – IoT, Full Stack Developer, Manufacturing Engineering Systems June 2020 – Oct 2021

- Traceability Project - Integral part of BSVI traceability team. The main focus was on the digitalization of the company and to provide communication between hardware devices. Used the Node-Red Platform to enable the communication and design the front-end. Created APIs in the NodeJS framework and integrated these APIs in the front end. Worked on MongoDB and MySQL databases. Developed a front-end application using Angular 8 and bootstrap 4 for a traceability system. Received Significant Contributor Award by CEO for the traceability project.
- The BMW Traceability project – Designed and developed the BMW traceability system for the engine assembly and vehicle sub-assembly. Used the node-red platform to enable communication between various scanners and developed API's in NodeJS to check the data is OK/NOK, API's would fetch the data from MySQL. Ensured zero defect vehicle delivery to the customer and achieved the same.
- Team Management and Team Lead – Managed and lead a team of three members. Worked on projects using the agile technology and ensured the team faced no difficulties and completed the projects in the given time.

Graduate Engineer – IoT, Manufacturing Engineering Systems

July 2019 – June 2020

- Traceability Project - Integral part of BSVI traceability team. The main focus was on the digitalization of the company and to provide communication between hardware devices. Used the Node-Red Platform to enable the communication and design the front-end. Created APIs in the NodeJS framework and integrated these APIs in the front end. Worked on MongoDB and MySQL databases. Developed a front-end application using Angular 8 and bootstrap 4 for a traceability system.
- The Traceability project includes the Child Part Mapping, Leak Testing and Oil Filling for the two-wheelers. Capturing all the data and storing it into the database (MongoDB) and ensuring zero customer complaints and zero defects was the motive of this project.
- Building Management System – Developed the building management system which includes fire, water and energy management altogether in a single application. The complete IoT project was developed in Node-Red Platform and the backend database used was MongoDB. API's were developed in the NodeJS framework.

Computer Science Engineering Intern – Smart Car Parking System

July 2018 - August 2018

- Developed a Smart Car Parking System for the company which will enable the user to view the parking slots that are available for parking, on the large monitor present at the entry gate. This will reduce the time to search for the available slots and it would save fuel cost which is wasted for moving back and forth in searching for available slots.

PROJECTS AND CONFERENCES

a. Detection and Analysis of Various Stages of Lung Cancer

- Developed a system using MATLAB to detect the cancerous nodules by feeding the CT scan image of the lungs of the patients. The system provides greater efficiency in detecting the cancerous nodules at early stages. Analyses the different stages of cancer and finds out if the treatment is effective or not.
- The CT scan image of the lungs was first de-noised and then segmented. The Median filtering algorithm was used for de-noising the CT scan image. The Fast-Marching algorithm was used for segmentation. Developed the feature extraction algorithm to extract the required features and to detect and analyze the percentage of lung cancer.

b. Bank Management System

- Using the core database concepts, developed the system to generate the tokens for the customers and manage the operations of the bank smoothly. This system was developed for the inhouse bank present in our college to avoid a larger gathering of crowds and to provide a good experience for the customers. Used the structured query language for the back-end and the front-end was developed using HTML and JavaScript.

c. Lifecycle of Malarial Parasite

- Designed and developed the computer graphics system to showcase the lifecycle of Malarial Parasite. Using OpenGL, created the visualization to understand the growth of the malarial parasite.
- This project enhances the user to have improved learning and understanding of how humans are infected by malaria. With an interactive user-interface (developed using OpenGL), the system attracts the user.

d. Evaluation of CT Scan image de-noising technique to estimate the best noise cancellation technique

- Presented and submitted a research paper titled “**Evaluation of CT Scan image de-noising technique to estimate the best noise cancellation technique**” at Sahyadri International Journal of Research, India.

CERTIFICATES

Front-End Web UI Frameworks and Tools: Bootstrap 4

06/2020

The Hong Kong University of Science and Technology

- Learned about grids and responsive design, Bootstrap CSS and JavaScript components. Also understood the basics of NodeJS and NPM.
- Applied the web UI frameworks and designed a webpage using Bootstrap 4 and its components.
- Secured a grade of 100%.

Front-End JavaScript Frameworks: Angular

05/2020

The Hong Kong University of Science and Technology

- Learned Angular framework and developed Angular application using Angular material and Angular Flex-Layout.
- Detailed study on Angular Components.
- Secured a grade of 100%.

Server-side Development with NodeJS, Express and MongoDB

05/2020

The Hong Kong University of Science and Technology

- Learned the server-side concepts, CRUD and REST.
- Applied the learnings to build and configure a backend server using the NodeJS framework.
- Built a RESTful API for the front-end to access backend services.
- Secured a grade of 100%.

Kepware Industrial Communications Training

12/2019

- Learned the Kepware communications between different hardware devices.
- This was an onsite training conducted by Brent Dube, Senior Applications Engineer, Kepware Products, USA.
- Applied the learnings and used the OPC UA Client driver to ensure secured and reliable data transfer to the database.

EXTRACURRICULAR ACTIVITIES

Sahyadri Project Support Scheme

01/2019 – 02/2019

- Took part in Sahyadri Project Support Scheme, an intra-college project exhibition and exhibited the final year project – “**Detection and Analysis of Various Stages of Lung Cancer**”.

Mentor – Campus Placement Team	<i>09/2018 – 02/2019</i>
<ul style="list-style-type: none">• Mentored the pre-final year students and conducted aptitude training classes for getting placed in companies.• Led a team of 8 members and conducted mock interviews with the students.	
Teaching Assistant – Computer Organization	<i>07/2016 – 08/2016</i>
<ul style="list-style-type: none">• Took up one whole module titled “Arithmetic” as a seminar which lasted for ten days.	

HONORS AND AWARDS

- Significant Contributor Award by CEO
- University Topper – Scored 10/10 CGPA in 1st year of Engineering.
- First Class Distinction – Dean’s List (Topper of the class).
- Karnataka State Govt. Undergraduate Scholarship (Top 2% in the state).
- First Class Distinction – Karnataka State Pre-University Examination (Top 2% in the state)