BHARGAVA B HEGDE

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4 year of experience of designing, building and maintaining web and desktop applications end-to-end.
B.E. in Information Science and Engineering from R.V. College of Engineering (2013-14), Bangalore.

Key Skills	Technology
Web applications	Node JS, J2EE, spring, Golang
Desktop application development	Java, python
Network programming	native sockets, Web sockets – java, js
Object Oriented Design and modeling	Java
Internet of things	Raspberry pi, nodemcu, esp8266
Robotics	Raspberry pi
Image Processing	OpenCV, python
Concurrent programming	Golang
Deep learning	Tensorflow, Keras

Professional Experience

- Currently with **INFINERA INDIA** since March - 2016

    - **Network Planning System**: Java based desktop application (Network Planning System / NPS) that helps to plan networks in a simulated environment with complete control over the devices and traffic. With this software we can simulate networks of any size, depending on the user's demands. User can add nodes, various equipment in the nodes, and links between them as per requirements. Traffic on the links is calculated using various routing algorithms to achieve maximum efficiency.
        - **Spectrum assignment feature:** Worked on an important feature that allows the user to manually decide which link consumes which part of the optical spectrum in a given path consisting multiple nodes. User can select a particular frequency in the optical spectrum range to assign a link to carry the traffic. The granularity of the frequency goes down to megahertz level.
        - **Coloring feature:** Working on a feature that decides how to assign the optical spectrum to multiple incoming new trails and achieve maximum efficiency in bandwidth consumption. This is achieved using graph coloring algorithm.

    - **Digital Network Administrator**: Java based desktop application (Digital Network Administrator / DNA) that handles the nodes in an optical network. The application can handle creating and provisioning digital and optical equipment in a simulated/real-time environment. Users can create links and assign bandwidth between nodes. In contrast to the NPS planning software above, in DNA users can send commands to the real network elements to achieve things like turning an equipment on/off, bringing up traffic on certain links, deciding the bandwidth consumption in real time, monitoring the networks to get information on its behavior.
        - **Client server architecture:** Worked on enterprise level client-server based architecture to achieve smooth user experience while handling a large amount of nodes in multiple networks.

- Worked with **INDEGENE LIFESYSTEMS** for **1.5 years** as a Java web developer. (2014 to 2016)
    - End to end development of a web application for job assignment, workflow management and profile handling purposes. The application can handle projects, Purchase Orders, Vendors, and Customers. Also, helps to manage profiles of users, administrators on a role based authorization schema.
      Main technology used - **Spring MVC** with **Oracle DB** for the backend.

Research and Scientific paper publications:

- **Most Innovative Project Award-RVCE:** Read the thoughts of a person based on a pre trained map of objects using an external non-invasive device (emotive headset).
  Awarded "most innovative project" from the department of Information Science, RVCE for final year project 'Cerebro'.
  White paper published :(link: IJITR-white-Paper, pdf)

OPEN SOURCE CONTRIBUTION:

Blog post: (link: How to train your dinosaur)

- **Deep Learning Neural Network based game automation:** A project to build a deep learning model that can learn to play a game similar to the dinosaur jumping game from the chrome offline page. Used tensorflow and keras to build the machine learning model that can process the game frame-by-frame and recognize when the obstacle is nearing the player (dinosaur in this case) and trigger a jump. (link: LearnANN)
- **Web Development:**
    - **Micro services architecture Proof of concept:** A proof of concept web application to demonstrate the micro services architecture based on JWT framework authentication. There are multiple services independently running on different docker containers, which talk to each other and authenticate themselves using an encrypted web token. This has proven to be a great model for scalability and extremely flexible for distributed deployment purposes. (link: microservices-poc)
    - **Social Networking Website:** An experimental project to learn the web development. Consisted of features like profile management, friend/unfriend, sending messages, uploading pictures, etc. (LAMP stack)
- **Image Processing:** REST api for tesseract (Optical Character Recognition library by Google) – (link: ImageToText)
- **Golang projects:**
    - Developing an end to end encrypted chat application using golang – (link: GoChat)
    - Developed web services using gorilla framework in golang – (link: microservices-poc)
- **Computer networks:**

  Have built applications with network programming both in C and Java.

    - **PC Controller:** Desktop application to control the Mouse on PC over the Wi-Fi with android app. Supports click, drag, etc. with "Robot" library. Uses Multi-threading to achieve concurrency. The events are passed from the phone to the PC wirelessly using TCP native sockets in android. (link: pc-controller)
- **Android Application Development:**
  Have worked on development of various small scale mobile applications like
    - **GeoReminder:** A GPS based app to remind the user about a task based on previously set locations. When the user is found at the locations saved in the application, a popup reminder is initiated.
    - **IMDB App:** A native app to quickly search for a movie or a TV show on IMDB website. (link: IMDBMovie)
    - **SMBC App:** A native app to browse through the SMBC comics. (link: SMBCapp)
    - **Sleepism:** A simple native app to help the user get more continuous sleep. (link: Sleepism)

HARDWARE & IOT RELATED PROJECTS

- **Internet of Things (IOT)**
  Worked on hardware-related projects with **raspberry pi, nodemcu, arduino, esp8266 etc** using **python, Node js** and **opencv**
  - Built a security system with the raspberry pi camera module as the motion detector.
  - Built a smart switch to control a light bulb on the wall socket via home wifi network.
  - Built a voice controlled system to perform actions on a set of LEDs (on, off, color change, blink, etc). This happens through http via worldwide web. (link: WebSockServer)
  - Built a facebook chat bot to automate any IOT device. (link: FbChatBot)

- **Robotics**
  Built a robot vehicle with live video streaming using raspberry pi and stepper motors. (link: robotproject)