Vinayaka R Kamath

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EDUCATION

- **SDM English Medium School** — Ujire, Mangalore Area
  Class 10 : *Central Board of Secondary Education; GPA: 10.00* — *2004 – 2014*

- **SDM Pre University College** — Ujire, Mangalore Area
  II PUC : *Karnataka Pre University Board; Agg: 96.67%* — *2014 – 2016*

- **PES University** — Bengaluru
  B-Tech in Computer Science : *PES University; GPA: 9.47* — *2016 – Present*

EXPERIENCE

- **Microsoft Innovation Lab** — PES University, Bengaluru
  Student Intern — *June 2017 - July 2017*
  - **Sensor Network and Security**: Worked as a student developer on project WiseNet, a self aware wireless sensor network. Successfully completed the objective of building a ad-hoc sensor network using the arduinos and nrf24L01 radio frequency modules. A second layer of security was also implemented for safe data transfer within the network using AES and RSA encryption algorithm. Depth first search was implemented so that the network could dynamically set itself up.

- **Center for Pattern Recognition and Machine Intelligence** — PES University
  Research Assistant — *January 2018 - April 2018*
  - **Image Processing**: Worked on generating various pipelines for face recognition and face verification using Locally Adaptive Regression Kernels. One of the pipelines consisted of a system built around lark with svd for preprocessing and distance metrics were used for the classification. Another pipeline designed used HOGSVD as a preprocessing step and several classifiers namely Gaussian Naive Bayes, SGD, LDA and KNN to achieve face recognition.

- **Mindstix Software Labs** — Pune, Maharashtra
  Intern - Data Scientist — *June 2018 - July 2018*
  - **Data Science**: Developed products for US based MNCs. Projects and Proof of concepts comprised of models built using various machine learning and image processing techniques. The projects include virtual makeup expert, skin tone detection model and the beauty advisor chat-bot. OpenCV, Rasa, Elasticsearch were few of the tools used during the course of time.

PUBLICATIONS

- A.Vinay, **Vinayaka R Kamath**, Varun M, K N Balasubramanya Murthy, S Natarajan,"Sparse Locally Adaptive Regression Kernel For Face Verification",Procedia Computer Science,Volume 132,2018, Pages 890-899.

- A.Vinay, **Vinayaka R Kamath**, Varun M, Nidheesh , K N Balasubramanya Murthy, S Natarajan,"Aggregation of LARK Vectors for Facial Image Classification", Presented at International Conference on Mathematical Modelling and Scientific Computing (ICMMSC) - 2018, IIT Indore, India.

- A Vinay, Abhijay Gupta, Aprameya Bharadwaj , Arvind Srinivasan , K N B Murthy, **Vinayaka Kamath** , S Natarajan,"Facial Analysis using Jacobians and Gradient Boosting", Presented at International Conference on Mathematical Modelling and Scientific Computing (ICMMSC) - 2018, IIT Indore, India.

PROJECTS

Projects available on github handle: https://github.com/craterkamath

- **Virtual Makeup Expert**:
  Tool built to apply foundation, lipstick and eye shadow on the image of the subject. The model used pretrained neural networks from dlib to identify the facial features and opencv to manipulate the image pixels to apply natural looking makeup on the face of the users.
- **Adaptive Quiz**:
  An adaptive quiz which understands the skill set level of the user and accordingly recommends questions. The system understands that the user has mastered the questions and displays harder questions. If the user fails to give correct answer the system reduces the difficulty level for him.
- **Skin Tone Detection**:
  Tool to detect the skin tone of an individual. The face is detected from the image using dlib and color on the images are converted to its true colors by applying colour correction algorithms like retinex, von kries on the images. The skin pixels are then extracted by thresholding. Skin tone is detected based on these pixels. A visualization tool using Flask was around this.
- **Beauty Advisor Chat Bot**:
  Bot built to deliver information about cosmetic products for an US based MNC. The bot used RasaNLU to understand the intents and entities and the model around it fetched the data from the elasticsearch database. RestAPI was built around it to both fetch the data from the database and deliver the message to the application. The UI was built on swift for IOS and android studio for android.
- **Upper Case**:
  Arcade game built using PyGame a python module. It consists of three mini games namely snake mania, bounce and alien invasion. The game mainly emphasized on using most of the builtin functions of the PyGame module. All the three games are played in single player mode and used inputs from both keyboard as well as mouse. User friendly features like high score and real time score update were also included.
- **Aqua Bot**:
  Android based application built to help farmers and fishermen monitor the weather in their locality. The application provides real time temperature, humidity, wind speed and other data using openweather api. The coordinates of the phone was retrieved using Location Manager and Google apis.
- **Home Automation Using Google Assistant**:
  A system was built to control and monitor various appliances in and around the house. All the smart appliances could be controlled through google assistant. The devices used MQTT protocol to communicate. The assistant was responsive and would provide aid in monitoring the devices. Raspberry PI was used in the physical layer to accomplish the automation.
- **Score Counter**:
  Built using Android Studio SDK score counter is an android application used to keep track of scores of a basket ball match. Using Java for back end and XML for the front end development a single screen application was built for getting a hands on experience of android development.

- **Anduino**:
  A semi automated shopping trolley aimed to improve the shopping experience of the customers. Arduino and an android smart phone formed the basic skeleton of the project. The Bluetooth module formed a bridge between the arduino on the trolley and the smart phone in users hand. The barcode scanner on the trolley helped the customers keep track of the things in the trolley

- **WiseNet**:
  A self aware wireless sensor network which dynamically sets itself up. The nodes are made up of arduino uno and nrf24L01 single chip transceiver modules. The nodes are capable of identifying its neighbors and spontaneously forming a network. The real time visualization of the network is done using a tool built using Unity–The game engine.

TECHNICAL SKILLS

- **Languages**: C, C++, Python,R. HTML, CSS, JavaScript, PHP

- **Tools/Frameworks**: Git,TensorFlow, Keras, MySQL, JQuery, OpenMP, Bootstrap, Flask, LATEX, PyGame, ArduinoIDE, Android Studio, Unity3D.

VOLUNTEER EXPERIENCE

- **Student Executive, IET Student Chapter PESU**:Was part of the Industry Institute Interaction domain of the IET student chapter of PES University. Successfully organized two industrial visits and seminar in the academic year 2016-17.

- **Volunteer, Team Informals, Aatmatrisha 2017**:Was an active member of the team informals, aatmatrisha 2017 and helped in organizing Gully cricket and gaming events.

- **Organiser, #code 2k17**:#code is a 24 hour hackathon conducted by Microsoft Innovation Lab at PES University. Over 150 teams had participated in the hackathon and cash prizes over 1 lakh was awarded to the participants.

MORE

Hobbies: Competitive Programming, Playing Chess, Watching Documentaries.
Linkedin Profile: https://www.linkedin.com/in/vinayaka-kamath-b36041129/
Hackerrank Profile :http://hackerrank.com/crater_kamath