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SAHIL B. SHAH

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EXPERIENCE

Member of Technical Staff	**Tonbo Imaging, Bangalore**	**Jul 2013 - present**

Video Stabilization using Inertial Measurement Unit
- Computed the **affine transform** between images using orientation values from **inertial sensors (gyroscopes)**
- Stabilized the video using the **affine transform** and **Kalman filters**
- Implemented on PC as a **Qt App**
- Built a **prototype** on a **ARM + DSP board** and ported code to **embedded C**
- **Increased** computational **efficiency** over previous video stabilization from **linear to constant time**

Research Intern	**Neuroinformatics & Cognitive Robotics Lab, TU Ilmenau, Germany**	**Sep – Nov 2012**

Heart beat estimation of a person using face video
- Used **face tracking** algorithms like **Active Appearance Model** to detect accurate face position
- Processed the R, G and B streams from the face video using **Fourier transforms, Bayes filter, Bandpass filters, intensity normalization, extrapolation of coordinates, parabola estimation and other techniques**
- Used **Independent Component Analysis** to isolate heart pulse
- Incorporated in **a robot** which assists old people to monitor their health

Software Developer, Intern	**Goldman Sachs Technology, Bangalore**	**May – Jul 2012**

Apache Solr
- Customized the **'More Like This' feature** of Solr which uses the **tf*idf information retrieval** algorithm to fetch similar records to a given record and thus **improved the quality** of results
- **Increased the efficiency** of human compliance officers by enabling them to scrutinize suspicious transactions from a **database of 7M+ XML records** in a single step process

Lead Developer	**Sharedcab (startup), Mumbai**	**Mar – Jun 2013**

Ruby on Rails
- Built a CRM web-app which enabled call-centre employees to obtain **leads (up to 10/minute)**, make **automated calls** (using cloud telephony), update status and close sale while on the **same page**
- Built a web-app to **generate automated calls** to affiliated taxi **drivers (over 1000)** using location data and complete an **IVR based bidding sequence** for allotment of taxi bookings

Android Apps
- Designed and built a **customer app** for booking taxis (integrated with Google Maps and Places)

EDUCATION

Bachelor of Engineering, Computer Science	**BITS Pilani, Pilani**	**2009-2013**

- Courses: Data Structures & Algorithms (top 10%); Machine Learning (top 10%); Artificial Intelligence; Operating Systems; Computer Networks; Database Systems; Programming Languages & Compiler Construction; Theory of Computing; Discrete Structures; Microprocessor Programming & Interfacing; Digital Electronics; Computer Architecture; New Venture Creation; Introduction to Intellectual Property Rights

PROJECTS

- **Implementation of Artificial Intelligence and Machine Learning** concepts: Simulated Annealing (approximately solve the Travelling Salesman Problem), Naïve Bayes classifier, K means clustering, Bayesian Networks etc
- **Comparison of Machine Learning methods:** compared Generative (Naïve Bayes) and Discriminative (Logistic Regression) classification methods using various datasets on Weka
- **Compiler Construction:** Implemented compiler logic in C for an experimental programming language
- **Line follower Robot:** Implemented the line follower logic in C on Atmega 16 microprocessor and designed and built the line follower hardware

TECHNOLOGY SKILLS

- Assembly (8086); C; C++; Java; Ruby; Python(basic); UNIX Utilities
- Android App Development; Eclipse; Heroku platform; Matlab/Octave; OpenCV; Rails; Qt; Solr; Weka;

OTHER INTERESTS

Basketball (college captain, gold medalist), reading, physics, running (completed a half marathon), startups, gadgets