Vihari Piratla

Computer Science graduate applicant

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Objective

Graduate school admission in the field of Computer Science followed by a career in research.

- **Research interests:** Information Extraction, Natural Language Processing, Machine Learning.

Education

- **Indian Institute of Technology, Mandi** — Mandi, India
  BTech. in Computer Science and Engineering; **CGPA:** 8.34/10 — Aug. 2010 – June 2014
  - Major: **Computer Science and Engineering**
  - Key courses: Pattern Recognition, Big Data and MapReduce, Kernel Methods for Pattern Analysis, Statistical Data Analysis

Research Experience

- **ePADD**
  Stanford University Libraries — Aug 2014 – Ongoing
  - ePADD, funded by Institute of Museum & Library Studies (IMLS), project to develop an open-source software for collecting and processing of emails from individuals.
  - **Research**
    - Developed a novel Fine-grained entity recognition system to evade the problem of domain adaptability across email archives. The approach uses binomial mixture models with distantly supervised learning. Trains on any gazette lists and it is scalable across languages and many semantic types. The system currently handles, but not limited to, around thirty semantic types including types such as diseases and awards. We will submit this work to KDD '16.
    - Cross-document coreference analysis and entity linking in emails
  - **External links**
    - ePADD in Wall Street Journal
    - An interview on the features of ePADD including some of the features I have implemented was published in Library of Congress blog here.
- **Bspoke**
  Amuse Labs — Jun 2014 – Dec 2014
  - Bspoke is a personalised web-search ranker. Bspoke builds a user profile by the expansion of concepts from explicitly specified Wikipedia pages of interest. The profile can then be used to re-rank the top set of result pages in Google search. I worked on various concept-expansion and page ranking techniques.
  - **External links**
    - Entry of Bspoke in Knight News Challenge can be found here.
    - Links to full-version and mini-version of software
- **Registration of Ultrasound and MRI images** — Guide: Navneet Subramanian
  GE Global Research, Bangalore — Jun 2013 – Aug 2013
  - Adapted the system described in "Fast Point Feature Histograms (FPFH) for 3D registration" ICRA '09 for 3D registration of Ultra Sound (US) images. Also worked on removing certain types of distortions from US images, which in some cases involved plane detection and vessel segmentation (Frangi vessel detection).

Publications

- Sudheendra Hangal, **Vihari Piratla**, Chaiyasit Manovit, Peter Chan, Monica Lam, Glynn Edwards, "Historical Research Using Email Archives in Special Collections" CHI 2015 Case Studies

Employment

- **Amuse Labs** — Dharwad, Karnataka
  Research Member Staff — Jun 2014 – current
- **GE Global Research** — Bangalore, Karnataka
  Research Intern in Medical Imaging — May 2013 – July 2013

Development Experience

- **3D reconstruction on smartphone** — Guide: Dr. A. D. Dileep
  B.Tech Thesis — Aug 2013 – Mar 2014
  - The goal of the project was to reconstruct a 3D structure of an object from its 2D images captured from various perspectives on a smartphone. The pipeline of the system involved tracking of the object, tracking of the camera (smartphone), and the final reconstruction to build a complete 3D model of the target object. We have adapted the grab-cut image segmentation algorithm to segment and track the object across the image frames, this was crucial for reducing the computation. The camera was tracked by various sensors available on a smartphone such as accelerometers, gyros which is fused with visual odometry information using Kalman Filters. This was then followed by voxel carving for 3D reconstruction of the object.
- **Touch Screen Projector** — Academic project
  IIT Mandi — Feb 2012 – Apr 2012
  - Touch screen projector is a software that enables interaction with a computer connected to a projector from the projection surface; one can click, double click, draw and scroll on the projected surface. The project also bagged the first prize in open-house of related course among 20 other teams.
  - **External links**
    - A demo of the product can be found here.
- **Autonomous Unmanned Aerial Vehicle [AUAV]**
  IIT Mandi — Sep 2011 – Aug 2012
  - I proposed and led a project to assemble an aerial vehicle capable of navigation in GPS-denied indoor environments, with a funding support equivalent of 5,000$ from our institute. It required solving problems such as *visual odometry*, *SLAM (Simultaneous Localization and Mapping)*, *collision avoidance*, *object detection* along with other hardware and system issues. Worked on various environment sensors like Kinect, stereo cameras, Sonars.

Achievements & Awards

- I represented IIT Mandi, as a member of a team, in ACM-ICPC 2012-2013 Kharagpur regional and 2013-2014 Kanpur regional
- I was part of a team that won the first-prize in Design Practicum course open-house in 2012 for the project "Touch Screen Projector" among 20 other teams
- I was among the top 300 students qualified for the Indian National Mathematical Olympiad (INMO) after clearing Regional Mathematical Olympiad (RMO) '09 with a state rank of 26
- I secured a rank of 3,600 among 450,000 students in the Joint Entrance Examination (JEE) 2010
- I received various scholarships that waived my tuition fees for five years during my schooling

Positions of responsibility

- Google Student Ambassador, IIT Mandi, 2012 – 2013.
- Technical Secretary, IIT Mandi, 2012 Spring.
- General Secretary, Suvalsar hostel, IIT Mandi 2010 – 2011.