Vikas Thamizharasan

Personal Data

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Education

2014 - 2018 **B.Tech in Computer Science and Engineering**, *IIIT* , Hyderabad, .

2012 - 2014 **Senior Secondary**, *New Millennium School,DPS*, Bahrain, .

Research Projects

3D Model Reconstruction and Manipulation with a single image, *2017*.

Bachelor's Project under Dr.Vineet Gandhi from CVIT (Computer Vision Lab), IIIT. Based on multiple research papers to generate 3d model from a single image, texture (diffuse + normal) mapping, image illumination estimation, depth analysis, model-to-image alignment using constrained optimization and image editing using 3d manipulation.

Pyqt, OpenCV, AutoDiff, C#

Source Code

Virtual Garment Fitting from Single Image, *ongoing*.

A single-shot single image-based approach for virtual cloth fitting. System contains an unconstrained cloth parser and a fully fledged cloth fitter. Graph cut for segmentation/ retrieval based cloth parsing, pose estimation and feature point extraction, 2d mesh morphing and warping.

2017 Microsoft CFD winning project, All India Microsoft finalist

Caffe, OpenCV, OpenBLAS, MATLAB, C++, Python

Major Projects

Google Summer of Code with ViSP, *2017*.

ViSP is a cross platform library built for visual tracking and visual servoing by Lagadic (robotics lab) from **INRIA**, France. The goal of the project was to automate the creation of ViSP CAD model files from existing 3D formats and achieve perfect, loss-less conversion.

Blender, Qt, Qt3D, Python, C++

Source Code and Wiki

Query focused Abstractive Summarization, *2017*.
Deep learning approach to generate summaries of a document covering all salient point given a query. Models used: LSTM, RNN with GRU, diverse attention based encoder-decoder model, GloVe. Based on *"Diversity driven Attention Model for Query-based Abstractive Summarization"* paper.
Tensorflow, Gensim, NLTK

Search Engine for Wikipedia, *2017*.
Created a search engine for Wikipedia (60GB dump) from scratch. Processed and tokenized large dump into inverted indexes. Used multiprocessing for speed up. Two-pass multi-way merge sort to create single index(4GB). Used Cosine similarity with modified parameters for Ranking. Project split into tasks and ran in parallel for fast retrieval and search.
Python

Other Projects

Typer Defence, *2016*.
3D game where the player has to type in words and come up with words/phrases on the fly in order to defeat oncoming enemies, and protect his/her's tower. Each enemy will have a word/phrase associated with it.
Unity game engine, C#, GLSL
Demo

OCREX, *2016*.
A fast and efficient document capture and processing application.It extracts data from bank, credit card,invoice, online statements or any scanned document and automates the process of extracting the data and storing them in custom templates.
Windows Form App, C#, Tesseract-ocr, MySQL
Source

Vshell, *2015*.
Course Project under Dr.Suresh Purini(Assistant Prof, IIITH), Operating Systems
Linux Shell made from scratch in C.
Source

Algorithms Implemented - Image Processing, Distributed Systems, *2016*.
Gaussian Pyramids and Laplacian Pyramids for image merging, Bilateral filtering, Twirl transform, Document segmentation, Soccer player extraction, Integral Image area calculation, Tone mapping, AVL trees, Min-max with alpha pruning.
Distributed Conway's Game of Life, MergeSort, Grep using **MPI**.
C++, MATLAB, NumPy, MPI

Object Recognition and Detection using CNN, *2017*.
Course Project for Introduction to Machine Learning. Worked on "YOLO: Real-Time Object Detection" for Pokemon identification in episodes. Dataset was made for the project.
Source

Experience

2017 **Developer**, *Google Summer of Code*.

2016 **Teaching Assistant**, *IIIT Hyderabad*.

2016 **Software Developer**, *Rsquare Technologies*, Bahrain.

Achievements

2017 **Microsoft Code.Fun.Do Winner Hyderabad**.

2016 **Finished in Top 20 Microsoft Code.Fun.Do All India Finals.**.

2014 **2400/2400 in SAT Subject Test**.

2013 **Top 5 in WHO Art competition**.

2012 **CGPA: 10/10 in CBSE Board Exams**.

Courses taken

2018.

• Database Systems • Software Engineering • Linear Algebra.

2017.

• Information Retrieval and Extraction • Distributed System
• Statistical Mechanics in AI (Machine Learning) • Computer Vision.

2016.

• Digital Image Processing • Complexity and Advanced Algorithms
• Computer Graphics • Artificial Intelligence • Principles of Programming Languages • Digital Signal Analysis.

2015.

• Data Structures • Computer Networks • Operating Systems

Technical skills

Programming Languages	Python, C, C++, C#, Javascript, Shell, MATLAB, Racket/Scheme, HTML and CSS, PHP(basic), JAVA(basic).
Frameworks	Tensorflow, Qt, Windows Form App, RMI(basic), scikit-learn, Caffe
Tools	MATLAB, Blender
Version Control	Git

Interests

- ML, Image Processing, Computer Vision, VR/AR, Web and Game Development, Open Source, Art, Sculpting, Drumming, Psychology, Cosmology, Chess