Curriculum Vitae

Vikas Thamizharasan

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Education

2020 - 2021 **Brown University**
Masters in Computer Science *GPA: 4.0/4.0*

2014 - 2018 **International Institute of Information Technology - Hyderabad**
Bachelor Of Technology
Computer Science and Engineering *GPA: 8.29/10*

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

Work Experience

June 2020-ongoing **Research Assistant : Brown University**, USA
Advised by Prof. James Tompkin
Estimating 3D geometry and reflectance profile (diffuse, specular and subsurface scattering) of human faces along with scene illumination from a single image.
Advised by Prof. Daniel Ritchie
Learning texture and shape representations of 3d meshes for texture synthesis.

Aug 2018-Apr 2019 **Research Intern : INRIA - Sophia Antipolis**, France
STARS Team in collaboration with Blu Manta (French Startup),
Advised by Dr.Antitza Dantcheva and Dr.François Brémond
Internship focused on (i) performing depth estimation and (ii) generating low-dimensional face embedding for face analysis using deep learning techniques from raw data acquired using state of the art structured light and active infrared hardware.

May 2017-Aug 2017 **Intern : Google Summer of Code**, Google
Mentored by Fabien and Souriya from Rainbow team, INRIA and hosted by Google
ViSP is a cross platform library built for visual tracking and visual servoing by Lagadic team from INRIA, France. The goal of this internship was to automate the creation of ViSP CAD model files from existing 3D formats and achieve perfect, loss-less conversion.
[Source Code and Wiki] **Qt, C++, Blender, Python**

Publications

2020 **Shape from Tracing: Reconstructing 3D Object Geometry and SVBRDF Material from Images via Diferentiable Path Tracing**
anonymous

Projects

2020 **Illumination-guided example-based stylization of 3D renderings**
GPU implementation of StyLit and EbSynth for CSCI 2240. Based on the paper "StyLit: illumination-guided example-based stylization of 3D renderings" by Jakub Fiser et al., SIGGRAPH '16.
[Source Code] [Video] [Presentation] **C++, CUDA**

2017 | **3D Object Reconstruction and Manipulation with a single image**
Advised by Dr.Vineet Gandhi, CVIT (Computer Vision Lab), IIIT-H

Inspired by 3-Sweep and Sketch-Based Modeling to reconstruct 3D models from a single image using geometric primitives to infer geosemantic constraints and model-to-image alignment using constrained optimization. The result was an interactive image editor where objects could be manipulated in 3D space with the advantage of applying non-rigid transformations along with texture mapping to create realistic rendering.

[Source Code] **PyQt, PyQt3D, OpenCV**

2017 | **Virtual Garment Fitting from Single Image**

A single-shot single image-based approach for virtual cloth fitting, containing an unconstrained cloth parser and a cloth fitter. Cloth segmentation and parsing achieved using graph cut and nearest neighbor style retrieval (Yamaguchi et al. TPAMI'14). Extracting pose and feature points was achieved using Part Affinity Fields (Zhe et al. CVPR'17). Finally, cloth fitting was done by 2D mesh morphing and warping of the extracted clothing segments and feature points.

2017 Microsoft CFD winning project, All India finalist **Caffe, OpenCV, MATLAB**

2017 | **Search Engine for Wikipedia**

Created a search engine for Wikipedia (60GB dump) from scratch. Processed and tokenized large dump into inverted indexes. 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.

Other Experience

2018 | **Volunteer**, IEEE International Conference on Image Processing, Applications and Systems (IPAS 2018).

2017 | **Head of Art Committee**, IIIT-Hyderabad.

2016, 2018 | **Teaching Assistant**, IIIT-Hyderabad. Courses: Computer Vision, Computer Graphics, Sculpting.

Achievements

2017 Microsoft Code.Fun.Do Hackathon Winner Hyderabad.
2013 Top 5 in WHO Art competition.

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

Languages	Python, C++, C, MATLAB, C#, Bash, Racket/Scheme, CUDA, Javascript.
Libraries	Pytorch, Tensorflow, OpenCV, Qt, OpenGL, Windows Form App, RMI
Tools	Blender, Inkscape, LaTeX, GCP, Android Studios.

Interests

Computer Vision, Computer Graphics, Deep Learning, Evolutionary Robotics, Open Source
Art, Sculpting, Drumming, Cooking, Bouldering, Anthropology, Chess, Football, MMA