Curriculum Vitae

Vikas Thamizharasan

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Education

2020 - 2021 | **Brown University**
Masters in Computer Science *(graduating Dec 2021)*

2014 - 2018 | **International Institute of Information Technology - Hyderabad**
Bachelor Of Technology in Computer Science and Engineering

Work Experience

May 2021- Aug 2021 | **Programming Intern**, Activision Blizzard, USA
Worked in the R&D team at Central Technology on statistical 3D face modelling.

Sep 2020- May 2021 | **Teaching Assistant**, Brown University, USA
Topics in 3D Computer Vision and Machine Learning, CSCI2952K, Fall 2020.
Computer Vision, CSCI1430, Spring 2021.

May 2020- ongoing | **Graduate Research Assistant : Visual Computing Lab, Brown University**, USA
Advised by Prof. James Tompkin and Prof. Daniel Ritchie, working on problems in the intersection of Computer Vision, Graphics and Deep Learning.

Aug 2018- Feb 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.

May 2017- Aug 2017 | **Intern : Google Summer of Code**, Google
Mentored by Fabien and Souriya from INRIA and hosted by Google.
[Source Code and Wiki]

Publications

2021 | **Improving Image-based Generation of Implicit Texture Fields for 3D Objects**, *under review*
Vikas Thamizharasan, *Joshua Pierce, Daniel Ritchie*
[Paper]

2021 | **Learning Physically-based Material and Lighting Decompositions for Face Editing**, *CVPR 2021, AICC Workshop*
*Qian Zhang**, **Vikas Thamizharasan***, *James Tompkin*
[Short paper] [Full paper]

2020 | **Shape from Tracing: Towards Reconstructing 3D Object Geometry and SVBRDF Material from Images via Differentiable Path Tracing**, *3DV 2020*
Purvi Goel, Loudon Cohen, Brad Guesman, **Vikas Thamizharasan**, *James Tompkin, Daniel Ritchie*
[Webpage] [Paper]

2019 | **Face Attribute Analysis from Structured Light: An End-to-End Approach**, *Multimedia Tools and Applications, under minor revision*
Vikas Thamizharasan, *Abhijit Das, Daniele Battaglino, Francois Bremond, Antitza Dantcheva*

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] **C++, CUDA**

2021 | **OBS Plugin for real-time video production effects guided by context from speech**
Expanding OBS-StreamFX and OBS-shaderfilter with automated filter application using audio and speech.
[CS1301] **C++, Python, HLSL**

2020 | **Interactive Graphics Course, CSCI 2240**
Implemented Monte Carlo Path Tracer, Geometry processing operations like Subdivisions, Simplification and Remeshing and Animating deformable solid objects using the Finite Element Method.
[ref1] [ref2] [ref3] **C++**

2018 | **3D Object Reconstruction and Manipulation with a single image**
Inspired by 3-Sweep and Sketch-Based Modeling to reconstruct 3D models from a single image by inferring geosemantic constraints to fit geometric primitives using constrained optimization. The result was an interactive image editor where objects could be manipulated in 3D space with the advantage of applying rigid transformations along with texture mapping to create realistic re-rendering.
[Source Code] **PyQt, PyQt3D, OpenCV, AutoDiff**

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.
Python

2015 | **Vshell**
A Linux Shell from scratch in C.

Technical skills

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

Achievements

2017 Microsoft Code.Fun.Do Hackathon Winner Hyderabad.
2013 Top 5 in WHO Art competition.
2013 2400/2400 in SAT Subject Test.

Courses taken

- Interactive Computer Graphics
- Database Systems
- Computer Vision
- Statistical Mechanics in AI
- Artificial Intelligence
- Data Structures
- Advanced Deep Learning
- Software Engineering
- Distributed System
- Digital Image Processing
- Principles of Program. Lang.
- Computer Networks
- Intro to Numerical Optimization
- Linear Algebra
- Info. Retrieval and Extraction
- Complexity and Advanced Algo.
- Digital Signal Analysis.
- Operating Systems

Other Experience

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

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

2016 | **Teaching Assistant**, Sculpture, IIIT-Hyderabad.