

Résumé - Vikas THAMIZHARASAN



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EDUCATION

2022 - Present	University of Massachusetts, Amherst Ph.D. in Computer Science Advisor: Prof. Evangelos Kalogerakis
2020 - 2021	Brown University Masters in Computer Science Advisors: Prof. James Tompkin and Prof. Daniel Ritchie
2014 - 2018	International Institute of Information Technology - Hyderabad Bachelor Of Technology in Computer Science and Engineering

WORK EXPERIENCE

JAN 2022 - AUG 2022	Research Intern , Activision Blizzard Contributed to state-of-the-art digital human technologies. Received credits for <i>Call of Duty: Modern Warfare II</i> (2022).	Los Angeles, CA
MAY 2020 - DEC 2021	Graduate Research Assistant , Visual Computing Lab, Brown University Advised by Prof. James Tompkin and Prof. Daniel Ritchie. Researched problems in the intersection of Computer Vision, Graphics, and ML.	Providence, RI
MAY 2021 - AUG 2021	Programming Intern , Activision Blizzard Worked in the R&D team on statistical 3D face modelling.	Los Angeles, CA
SEP 2020 - MAY 2021	Teaching Assistant , Brown University Topics in 3D Computer Vision and Machine Learning, CSCI2952K , Fall 2020. Computer Vision, CSCI430 , Spring 2021.	Providence, RI
AUG 2018 - FEB 2019	Research Intern , INRIA Advised by Dr. Antitza Dantcheva and Dr. François Brémond. Face attribute analysis from structured light data.	France
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]	Remote

PUBLICATIONS

2021	Improving Image-based Generation of Implicit Texture Fields for 3D Objects , <i>under review</i> Vikas Thamizharasan, Joshua Pierce, Daniel Ritchie [Paper]
2021	Learning Physically-based Material and Lighting Decompositions for Face Editing , <i>CVPR 2021, AICC Workshop and CVM 2022</i> Qian Zhang*, Vikas Thamizharasan*, James Tompkin [Paper] [Presentation] [Code]
2020	Shape from Tracing: Towards Reconstructing 3D Object Geometry and SVBRDF Material from Images via Differentiable Path Tracing , <i>3DV 2020</i> Purvi Goel, Loudon Cohen, Brad Guesman, Vikas Thamizharasan, James Tompkin, Daniel Ritchie [Webpage] [Paper]

PROJECTS

- 2021 | **Non-Linear Deep Face Models**
Deep learning powered 3D generative model that captures non-linear deformations and properties of human face geometry and appearance. Our method learns a disentangled identity and expression latent space, models the correlation between appearance and geometry, captures high-frequency textures and provides artistic semantic control.
[\[Source Code \]](#) PyTorch
- 2020 | **Illumination-guided example-based stylization of 3D renderings**
GPU and CPU 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
- 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 FEM.
[\[ref1 \]](#) [\[ref2 \]](#) [\[ref3 \]](#) C++, Eigen
- 2018 | **3D Object Reconstruction and Manipulation with a single image**
An interactive method to reconstruct 3D models from a single image by fitting geometric primitives via constrained optimization through the inference of user-guided geo-semantic constraints. The result was an interactive image editor for object manipulation.
[\[Source Code \]](#) PyQt3D, OpenCV, SciPy
- 2017 | **Search Engine for Wikipedia**
Created a search engine for Wikipedia (60 GB dump). Project for Information Retrieval and Extraction course.
Python
- 2016 | **Typer Defence**
3D tower defense game built in Unity.
[\[Demo \]](#) Unity game engine, C#

TECHNICAL SKILLS

LANGUAGES Python, C++, C, MATLAB, C#, Bash, Javascript, CUDA, Racket/Scheme.
LIBRARIES Pytorch, Tensorflow, OpenCV, SciPy, NumPy, Qt, Eigen, OpenGL, Windows Form App
TOOLS Blender, Inkscape, LaTeX, GCP, Android Studios, Unity, Renderman.

ACHIEVEMENTS

- 2017 Microsoft Code.Fun.Do Hackathon Winner Hyderabad, India.
2013 Top 5 in World Health Organization Art competition.

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.