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 **IIIT - Hyderabad**
Bachelor Of Technology in Computer Science and Engineering

WORK EXPERIENCE

MAY 2023 - ONGOING **Research Scientist Intern**, Adobe Research — *San Jose, CA*
Diffusion models for vector graphics.

JAN 2022 - AUG 2022 **Research Intern**, Activision Blizzard — *Los Angeles, CA*
Contributed to state-of-the-art digital human technologies.
Received credits for *Call of Duty: Modern Warfare II (2022)*.

MAY 2020 - DEC 2021 **Graduate Research Assistant**, Visual Computing Lab, Brown University — *Providence, RI*
Researched problems in the intersection of CV, Graphics, and ML.

MAY 2021 - AUG 2021 **Programming Intern**, Activision Blizzard — *Los Angeles, CA*
Worked in the R&D team on statistical 3D face modelling.

AUG 2018 - FEB 2019 **Research Intern**, INRIA — *France*
Advised by Dr. Antitza Dantcheva and Dr. François Brémond.
Face attribute analysis from structured light data.

MAY 2017 - AUG 2017 **Intern : Google Summer of Code**, Google — *Remote*
Mentored by Fabien and Souriya from INRIA and hosted by Google.
[Source Code and Wiki]

PUBLICATIONS

2023 **NIVeL: Neural Implicit Vector Layers for Text-to-Vector Generation**, *under review*
V. Thamizharasan, *D. Liu, M. Fisher, N. Zhao, E. Kalogerakis, M. Lukác*

2023 **VecFusion: Vector Font Generation with Diffusion**, *under review*
V. Thamizharasan, *D. Liu, S. Agarwal, M. Fisher, M. Gharbi, O. Wang, A. Jacobson, E. Kalogerakis*

2021 **Improving Image-based Generation of Implicit Texture Fields for 3D Objects**,
V. Thamizharasan, *J. Pierce, D. Ritchie*
[Paper] [Code]

2021 **Learning Physically-based Material and Lighting Decompositions for Face Editing**, *CVPR 2021, AICC Workshop* and *CVM 2022*
*Q. Zhang**, **V. Thamizharasan***, *J. Tompkin*
[Paper] [Presentation] [Code]

2020 **Shape from Tracing: Towards Reconstructing 3D Object Geometry and SVBRDF Material from Images via Differentiable Path Tracing**, *3DV 2020*
P. Goel, L. Cohen, B. Guesman, **V. Thamizharasan**, *J. Tompkin, D. Ritchie*
[Webpage] [Paper]

2019 **Face Attribute Analysis from Structured Light: An End-to-End Approach**, *Multimedia Tools and Applications*
V. Thamizharasan, *A. Das, D. Battaglino, F. Bremond, A. Dantcheva*
[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**

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

2022-2023 **Teaching Assistant**, UMass, Amherst
Game Programming, CSCI 576, Fall 2022,2023.
Intelligent Visual Computing, CSCI 674, Spring 2022.

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

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

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