

# Vidya Narayanan

☎ (+1) 412-789-0750 | ✉ vidyan@cmu.edu | 🏠 vid8687.github.io | 🎓 Vidya Narayanan

I am interested in improving computational design and fabrication ecosystems by building better techniques, interfaces and design languages.

## Education

**Carnegie Mellon University** PH.D. IN COMPUTER SCIENCE

Thesis: Foundations for 3D Machine Knitting. Advisor: James McCann

Pittsburgh, USA

2016 - 2021 (Expected)

**Indian Institute of Science** MASTER OF SCIENCE (ENGG)

Thesis: Similarity of Scalar Fields. Advisor: Vijay Natarajan

Bangalore, India

2012 - 2015

**National Institute of Technology** BACHELOR OF TECHNOLOGY, COMPUTER ENGINEERING

Surat, India

2004 - 2008

## Work Experience

**Adobe Research** RESEARCH INTERN

Mentors: Michal Lukáč, Amanda Ghassaei, Danny Kaufman

I built a system to semi-automatically fold 2D dielines into 3D forms and contributed to the Adobe Max '19 Sneak Demo *Fantastic Fold*.

San Jose, USA

May 2018 - Aug 2018

**Disney Research** RESEARCH ASSOCIATE

I worked on a high-level design language and compiler for machine knitting.

Pittsburgh, USA

Aug 2015 - June 2016

**NVIDIA** SYSTEM SOFTWARE ENGINEER

I implemented and maintained DirectX graphics drivers for NVIDIA GPUs.

Pune, India

Jan 2011 - Jul 2012

**Tata Elxsi** SOFTWARE DEVELOPER

Developed graphics applications for clients including EA Brightlight's official *Harry Potter and the Deathly Hollows* game.

Bangalore, India

Nov 2008 - Dec 2010

## Publications

- [1] Inverse Design Tool for Asymmetrical Self-Rising Surfaces with Color Texture  
Jianzhe Gu, **Vidya Narayanan**, Guanyun Wang, Danli Luo, Harshika Jain, Kexin Lu, Fang Qin, Sijia Wang, James McCann, Lining Yao  
*Symposium on Computational Fabrication*, 2020
- [2] Representing Crochet with Stitch Meshes  
Runbo Guo, Jenny Lin, **Vidya Narayanan**, James McCann  
*Symposium on Computational Fabrication*, 2020
- [3] Visual knitting machine programming  
**Vidya Narayanan**, Kui Wu, Cem Yuksel, James McCann  
*ACM Transactions on Graphics (TOG) SIGGRAPH* 2019
- [4] Efficient Transfer Planning for Flat Knitting  
Jenny Lin, **Vidya Narayanan**, James McCann  
*Proceedings of the 2nd ACM Symposium on Computational Fabrication*, 2018
- [5] Automatic Machine Knitting of 3D Meshes  
**Vidya Narayanan**, Lea Albaugh, Jessica Hodgins, Stelian Coros, James McCann  
*ACM Transactions on Graphics (TOG)* 2018
- [6] An exploratory framework for cyclone identification and tracking  
Akash Anil Valsangkar, Joy Merwin Monteiro, **Vidya Narayanan**, Ingrid Hotz, Vijay Natarajan  
*IEEE transactions on visualization and computer graphics* IEEE, 2018
- [7] A Compiler for 3D Machine Knitting  
James McCann, Lea Albaugh, **Vidya Narayanan**, April Grow, Wojciech Matusik, Jennifer Mankoff, Jessica Hodgins  
*ACM Transactions on Graphics (TOG) SIGGRAPH* 2016
- [8] Distance between extremum graphs  
**Vidya Narayanan**, Dilip Mathew Thomas, Vijay Natarajan  
*IEEE Pacific Visualization Symposium*, 2015

## Talks

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**An Introduction to 3D Machine Knitting** COMPUTATIONAL FABRICATION SEMINAR

**Visual Knitting Machine Programming** SIGGRAPH

**Automatic Machine Knitting of 3D Meshes** SIGGRAPH

**Comapring Scalar Functions with Extremum Graphs** PACIFIC VIS

virtual April 2021

Los Angeles, USA August 2019

Vancouver, Canada July 2018

Hangzhou, China April 2015

## Service

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Teaching	TA for 15-462 (CMU) Computer Graphics (taught by Keenan Crane) Fall 2020
	TA for 15-300 (CMU) Research & Innovation in CS (taught by Jonathan Aldrich & Bogdan Vasilescu) Fall 2019
	Guest Lecture for 15-869 (CMU) Algorithmic Textiles Design: Introduction to Machine Knitting (Spring 2020) and Making 3D shapes with knitting, weaving and folding (Spring 2021)
	Knitout Office Hours: held weekly for introducing machine-knitting using knitout (with CMU Textiles Lab) 2018 onwards
Mentoring	Michelle Guo (Undergraduate Researcher, CMU) Tile-based visualization and design of crochet patterns (Summer 2020) Aparajita Haldar (Undergraduate Researcher, BITS Pilani Goa) Comparing contour-tree algorithms (IISc, Summer 2015)
Reviewing	SIGGRAPH (2020-21), SIGGRAPH ASIA(2019-21), TEI(2019), SCF(2018,20)
Committees	Posters Chair, Symposium on Computational Fabrication 2019, Pittsburgh, USA
	Student Member, Doctoral Review Committee (2017-21), Computer Science Department, CMU
	Student Member, PhD Admissions Committee (2020), Computer Science Department, CMU

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