Aditya Narayan Das

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Education

2019–2020	**Carnegie Mellon University**.
	Master of Science in Computational Design and Manufacturing, 3.69 / 4.00
	Relevant Coursework: Machine Learning, Computer Vision, Computer Systems, Statistical Techniques in Robotics
2015–2019	**Vellore Institute of Technology**.
	Bachelor of Technology in Mechanical Engineering, 8.95 / 10.00

Skills

Software Dev:	C, C++, Python, Git
Other:	SolidWorks (Computer Aided Design)

Experience

Jun'20 - Aug'20	**Research Intern**, *Integrated Design Innovation Group, CMU*, Pittsburgh.
	-Automated shape-grammar development for automotive branding using fine-grained image classification.
	-Supported by Graduate Summer Research Fellowship
Sep'19 - Dec'20	**Research Assistant**, *Computational Engineering and Robotics Laboratory, CMU*, Pittsburgh.
	-Developing stereo-vision based perception system for tracking and localization of architectural products in a construction environment
May'17 - Jun'17	**Intern**, *Aeronautical Development Agency*, India.
	-Developed an algorithm based on multi-variable regression to predict structural failure in fighter aircraft
	-Used multivariable regression to model the relationship between structural strain and acceleration forces

Projects

Jun'20	**Ray-Tracer (Python) {code}**.
	Objective: Develop a simple ray-tracing engine
	-Implemented lambert and phong-blinn shading with reflections for realistic texture rendering.
	-Improved rendered textures using super-sampling anti-aliasing
Mar'20	**Dynamic Storage Allocator (C) {code}**.
	Objective: Implement malloc(), calloc(), realloc() and free() from the C standard library
	-Achieved 10,500 Kops by implementing a segregated doubly-linked list data structure for free-memory traversal
	-Reduced internal memory fragmentation through memory address manipulation to achieve 74% utilization
Oct'19	**Stereo Reconstruction (Python) {code}**.
	Objective: Implement a 2-view 3D reconstruction algorithm
	-Calculated image-image and scene-image correspondences by estimating Fundamental and Essential matrices.
	-Wrote triangulation and stereo-matching algorithms to obtain 3D coordinates from 2D point correspondences
Nov'19	**Optical Character Recognition (Python + PyTorch) {code}**.
	Objective: Develop an OCR Solution from scratch
	-Used image processing to pre-process and extract letters from a raw image
	-Evaluated extracted text using a CNN trained on EMNIST dataset, achieving close to 80% accuracy.

Publications

Mar'19	**A.N. Das, G. Manickam, P. Barua, M. Haboussi, Investigation of thermoelastic buckling of variable stiffness laminated composite shells using finite element approach based on higher order theory**.