

AMAN SACHAN

aman9740@gmail.com
<https://www.amansachan.com>
<https://github.com/Aman-Sachan-asach>
(267)-361-8276

EDUCATION

UNIVERSITY OF PENNSYLVANIA

M.S.E. Computer Graphics and Game Technology
Related subjects: Advanced Computer Graphics, Advanced Topics in Computer Graphics and Animation, Computer Graphics, Computer Animation, Data Structures and Algorithms
August, 2016 - May, 2018

VISVESVARAYA TECHNOLOGICAL UNIVERSITY

B.E. Electrical and Electronics Engineering
August, 2012 - July, 2016

PROJECTS

MONTE CARLO PATH TRACER ♦ *Ongoing Project* ♦ *C++, OpenGL, Qt*

- The path tracer renders **physically accurate** scenes using a **BSDF** consisting of multiple BxDFs, **important sampling**, and different lighting integrators
 - Feature set expanded every week; a more complete description is on my website
- February, 2017 - May, 2017

MAYA L-SYSTEM PLUGIN ♦ *C++, MEL, Maya API*

- **Gui and maya menu item** implemented with a **MEL** script
 - **Attribute editor** implemented with **C++**
 - The user can **write or upload** files for the **grammar** of the L-system
- January, 2017

PROCEDURALISM ♦ *Multiple Projects* ♦ *Javascript, WebGL, GLSL, Nodejs, Threejs*

- Built multiple projects on the principles of **procedural graphics** and incorporated in them **dynamic interactivity, through a GUI**
- **MetaBalls** - Created 3D metaballs using the **marching cubes** mesh creation technique
 - **Procedural City** - A city built using **shape grammar**, that changes with every build
 - **Shaders** - Post Processing Filters, and a variety of shaders
 - **Noise Cloud** - superposition of multiple octaves of pseudo-4D noise deforming a surface
- January, 2017 - February, 2017

RAY TRACER ♦ *C++, OpenGL, Qt*

- The ray tracer modelled image formation in terms of specular reflectance, transmission, lambertian and phong lighting models, and shadow feeler rays
- January, 2017

MINI-MINECRAFT ♦ *Group Project* ♦ *C++, OpenGL, GLSL, Qt*

- **Efficient Terrain Rendering** with interleaved VBO's and 'mesh hull' drawing
 - A **general scheme** to **texture map**, **normal map**, and define **specularity** for meshes
 - **Weather** (snow and rain as billboards) and **Clouds**
 - **Day and Night Cycle** (changing light direction, intensity, and color + changing background color) and **Animated water and lava**
- November, 2016

HALF-EDGE MESH, CATMULL CLARK, and SKINNING ♦ *C++, OpenGL, Qt*

- Implemented a **Half-Edge Mesh data structure**, the accompanying **GUI** and a **visualisation scheme** for the Half-Edge data structure components
 - **Catmull-Clark subdivision**, **extrusion**, triangulation, adding vertices to the mesh
 - **Interactive Skeleton Structure**, **Skinning**, and Shader Based **Skin Deformation**
- November, 2016

LEADERSHIP and AWARDS

HELIOS ♦ *Project Lead* ♦ *Grant, Funding, National Competition Finalists*

- Set up a 250W **solar PV system** in the BMSIT&M Campus that included the creation of a **custom single axis tracked auxiliary reflector system** to **significantly improve the efficiency** of the deployed solar PV system at lower than market cost
 - Received **Rs. 1,00,000/-** in funding from BMSIT&M (only student project to receive funding from the college)
 - Received a **grant of Rs. 14,000/-** from IEEMA, along with a travel allowance
 - **Finalist** of national competitions **KPIT Sparkle 2016** and **Engineer Infinite 2016**
- March, 2015 - June, 2016

EARTHIAN 2014 ♦ *Team Lead of Winning Team*

- Wipro's annual international **environmental sustainability** program and competition
 - Awarded **Rs. 1,50,000/-** as the winner's of the competition
- October, 2014 - November, 2014

VIDYUT 2k14 ♦ *Prime Coordinator, Head of Sponsorship, Public Speaking*

- A Fest organised by the department of Electrical and Electronics Engineering
 - One of the **prime coordinators** of the fest; **Head of the sponsorship committee**; **M.C.** for the event 'Minute to Win It'; **Key speaker** in the valedictory address
- September, 2014

SKILLS

PROGRAMMING

C/C++, GLSL, MEL,
Javascript, Python, Java

GRAPHICS

OpenGL, WebGL,
Maya API, Threejs

SOFTWARE

Git, Qt, Visual Studio,
Maya, AutoCAD