

RAJAGOPAL SATHYAMURTHI

<http://www.cs.stanford.edu/people/rajsat/>

EDUCATIONAL QUALIFICATION

- **Stanford University** Current GPA: 3.9/4.00
Masters in Computer Science 2009 – 2011(Expected)
 - *Specialization: Real World Computing*
 - *Completed courses: Intro to Computer Graphics, Geometric Modeling, Data Visualization, Operating Systems and Systems Programming, Interactive Computer Graphics, Image Synthesis and Rendering*
 - *Current Courses: Web Applications, OOP from Modeling/Simulation Perspective*
- **Birla Institute of Technology and Science (B.I.T.S), Pilani** CGPA: 9.15/10.00
B.E. (Hons) Computer Science and M.Sc. (Hons) Mathematics [Dual Degree] 2004 – 2009
 - *Kishore Vaigyanik Protsahan Yojana (KVPY) Research Fellowship*

PROFESSIONAL & RESEARCH EXPERIENCE

- **Stanford University** Palo Alto, CA
Graduate Research Assistant Sep 2009 – Present
 - Worked on the problem of communication routing in ad-hoc, mobile unmanned networks.
 - Designed an algorithm that employs hierarchical multi-objective control techniques to deform virtual elastic bands that are subsequently interpreted as solutions to the ad-hoc routing problem.
 - Implemented a simulator for the same in Python with a 3D graphical interface illustrating the prioritized collection of fields and updates the virtual waypoints at each time-step.
- **Roblox Corporation -- <http://www.roblox.com>** Redwood City, CA
Client Graphics Intern June '10 -- Sep '10
 - Worked with 4-member team responsible for major graphics features on the client.
 - Gained startup experience – worked on multiple interesting projects in short time-span.
 - Solely implemented in-game video/audio recording and Youtube upload feature in C++; integrated it into the product after going through testing cycle.
 - Designed an efficient version of Screen Space Ambient Occlusion for OGRE rendering engine and evaluated its performance.
 - Utilized Multiple Render Targets to integrate it into Roblox.
- **DreamWorks Animation SKG** Redwood City, CA
Technical Director Intern July 2008 – June 2009
 - Developed 'Conflict Resolve' tool in Python to resolve conflicts in the India-US transfer pipeline.
 - Implemented 'Shot Batch'- A GUI tool in Python with a flexible dependency graph functionality that facilitates cross sequence asset management & quick render farm submissions.
 - Involved in support for the lighting and surfacing departments with troubleshooting and handling miscellaneous porting/transfer requests
 - Monitored resource management, production revision control, render farm process and usage

ACADEMIC PROJECTS

- **Samsara - Interactive Chat History Visualization**
 - Developed a GUI in ActionScript to explore social behavior of a person through his IM archives.
 - Handles large volumes of chat logs effectively (with MySQL as the backend) while maintaining real-time interactivity in the front-end.
 - Provides a real-time chat visualization to augment plain text chatting.
- **Image Synthesis & Rendering – Physically realistic rendering of Twelve Apostles**
 - Procedurally modeled clouds using implicit primitives and smooth blending of density functions using metaballs.
 - Implemented volumetric photon mapping to render effects such as color bleeding and crepuscular rays at cloud edges and used particle simulation to render the ocean.
- **SPEX – A 3D Space Video Game**
 - Implemented a 3D space FPS game with advanced visual effects and rendering techniques.
 - Handles basic collision detection, AI and rendering effects such as bump mapping.
 - Uses the Ogre rendering engine and its plugins. Designed custom 3D models and animation using Maya, shaders and particle effects using GLSL.
- **Geometric Modeling - Planning helicopter tours over terrain**
 - Implemented a simulator in OpenGL to build a triangulated network of geographical terrains.
 - Designed algorithms for planning smooth sightseeing tours by flying over these terrains; optimizing the three constraints - length, curvature and the 'safeness' of the path.
 - Provided ability for modification of tour points and detours.
- **Numerical Methods for Optimization and Interpolation**
 - Compared the efficiency of different interpolation techniques including Normal and Clamped Cubic spline, Newton and Lagrange polynomial by plotting graphs using C++.
 - Presented the work as a technical paper during APOGEE (National Technical Festival of BITS)

EXTRA-CURRICULAR ACTIVITIES

- **Coordinator of the Department of CCTV, BITS-Pilani** *Dec 2004 – May 2008*
 - Headed a team of around 50 students in designing creative, theme-based 2D and 3D multimedia presentations that were screened to an audience of over 2000 including students and faculty
 - Worked on modeling, texturing and animation using Autodesk Maya
 - Co-directed a short film that used green screen for compositing
 - Conducted a workshop on computer animation to introduce junior students to techniques in Maya
- **Student member of Academic Counseling Board, BITS-Pilani** *Aug 2006 – May 2008*
 - Worked along with faculty and administration to provide academic and moral guidance to students

SKILLS

- Languages: C/C++, Python, ActionScript 3.0
- Modeling/Rendering: OpenGL, Ogre Engine, Autodesk Maya
- Multimedia Software: Adobe Premiere Pro 2, Adobe Photoshop CS 2
- Web Technologies: Java Script, HTML & CSS
- Operating Systems: Linux (Red Hat), Windows XP/Vista, Mac OS X 10.6
- Database Technologies: Oracle 9i, My-SQL