

LAVANYA SITA TEKUMALLA

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OBJECTIVE

To Secure a job that puts my skills to the best possible use.

EDUCATION

Current

Master of Science, Computer Science (Expected Graduation Date: Dec 2004)
[School of Computing, University of Utah](#), Salt Lake City, Utah.
(GPA 3.85/4)

Undergraduate

Bachelor of Engineering, Computer Science and Engineering (August 2002)
[Osmania University College of Engineering](#) (Autonomous), Hyderabad, INDIA.
Aggregate: 90% in CS and Math courses. 89% aggregate overall.
(Equivalent to GPA 3.9 / 4)

WORK EXPERIENCE

Research Assistant

Surface reconstruction from Point Clouds, Summer 2003 - Spring 2004
[Prof. Elaine Cohen](#), [Research Group: GDC](#) (Geometric Design and Computation)
Worked in the [Alpha 1](#) Development Team: Alpha_1 is a software base for geometric modelling.

Teaching Assistant

[CS5020/CS3510 "Advanced Algorithms and Data Structures"](#), Spring 2003

Teaching Assistant

[CS2020 "Introduction to Computer Science"](#), Fall 2002

Summer Intern

[NRSA \(National Remote Sensing Agency\), India](#), Summer 2001
Dealt with efficient data processing in Real Time Environments,

Student Project

Worked in a team that made GREVISION, a software for preparing for GRE Summer 2001

COMPETITIVE EXAMS

- **GATE** ([Graduate Aptitude Test in Engineering](#)): 99.99 **percentile** - **All-India rank 2**
This is a subject based exam (Similar to AGRE), taken by Computer Science undergrads in India to join IITs, IISc and any other institutions in India for Post-graduation
- **EAMCET** (Engineering, Agriculture and Medical Common Entrance Test- Andhra Pradesh, India):
Rank 112 among over 100,000 students in the Engineering stream. [About EAMCET](#)
- **GRE** 2270 / 2400 (q 800, a 750, v 720)
- **AGRE** Scaled Score: 810 (Subject: CS, Percentile: 84)
- **Intermediate Examination 1998**: Secured 95% in a state wide examination conducted by Board of Intermediate Examinations, Andhra Pradesh, India. Rank: Below 50 in an exam taken by around 200,000 students. Rank in School: 3/1000

AWARDS AND HONORS

- **National Merit Scholarship** for higher studies *twice* by the government of India for academic excellence on the basis of 10th class (SSC) results and Intermediate Exam results
- Secured a Gold Medal from ACE Academy for topping GATE-2002.
- Secured prizes in C Language programming competition during undergrad and won prizes in Math Fairs, Science Fairs and Essay Writing competitions during High School.

SOFTWARE SKILLS

Programming Skills Operating Systems Programming Tools

C, C++, OpenGL, Java, COBOL, SQL, VC++, HTML
Windows NT, UNIX, Linux, IRIX.
Win32, MFC, OpenGL, GLUI, FLTK, GTK

COURSEWORK

GRADUATE

[Advanced Computer Graphics-I](#), [Polygonal Representation of Surfaces \(Mesh Processing\)](#), [Computer Aided Geometric Design I](#), [Computer Aided Geometric Design II](#), [Image Processing](#), [Advanced Computer Architecture](#), [Operating Systems](#), [Foundations of Computer Science](#)

UNDERGRADUATE (CS COURSEWORK)

Software Engineering, Artificial Intelligence, Distributed Systems, Algorithm Analysis and Design, Internet programming, Basic Windows Programming and VC++ Lab, Compiler Construction, Real-Time Systems, Data Communications and Computer Networks, Data Base Management Systems, Microprocessors and Interfacing, Computer Programming and C, Data Structures and C++, Discrete Mathematics, Logic and Switching Theory, Computer Organization, Programming Languages, Digital Electronics, Automata Languages and Computation, Computer Graphics and Artificial Neural Networks.

PAPERS AND PROJECTS

- **From Point Clouds to Trimmed NURBS:**
 - I'm currently working with Prof. [Elaine Cohen](#) on surface reconstruction from point clouds to construct CAD models. (Obtaining a tensor product B-spline surface from scattered data). The issues involved include, preserving detail in the input, tackling noise (with some kind of smoothing), dealing with incomplete data and data with holes, finding a suitable parameterization and finally devising a suitable method to fit surfaces.
- **The [Alpha_1 Project](#), [GDC](#) group, School of Computing, University of Utah.**
 - Adding B-spline data fitting code to the Alpha_1 repository. The Alpha_1 system is an advanced research software base, supporting use and research in geometric modelling, high-quality graphics, curve and surface representations and algorithms, engineering design, analysis, visualization, process planning, and computer-integrated manufacturing.
- **A Mobile Commit Protocol Based on Timeouts:** Undergraduate final Project, Osmania University Coll of Engg
 - Devised and Implemented a transaction commit protocol taking into account the constraints of the mobile environment. ([Report Here](#))
- **Efficient Data Processing in Real Time Environments.** [National Remote Sensing Agency](#), India(summer 2001)
 - The NRSA deals with receiving data (typically images) from satellites at real-time rates. We studied the problems involved and implemented image processing algorithms with input received at real-time rates. This was carried out in IRIX environment under the guidance of Dr. Bayya Lakshmi.
- **Survey of the applications of Artificial Neural Networks** (Particularly control applications).
 - Presented a student paper at "Technosance", a National Level Technical Symposium at EEE Department, Osmania University College of Engineering, Hyderabad, India.

Course Projects:

- **Implementation of a particle engine using OpenGL:** This could simulate fire, explosions, snow, rain and smoke. Terrain rendering with height maps was also implemented to give parts of the project a more realistic appearance. ([Report here](#))
- **Analysis of Athlon MP Processor:** This was done as the final project of the course Advanced Computer Architecture ([Report Here](#)).
- **Texture Synthesis on Surfaces:** This is based on the paper "Texture Synthesis Over Arbitrary Manifold Surfaces ([Paper here](#))" by Wei and Levoy. ([Presentation](#) here).
- **Image Processing Algorithms:** Projects included Gamma Correction, Histogram Matching, Image Mosaicing, Use of common filters for High pass and Low pass filtering, edge detection and Hough transform to detect lines and circles. ([Reports Here](#)).
- Developed the *Yalnix operating System* on an emulated hardware (Linux environment) as a part of the Operating Systems course. This involved a thorough understanding of the structure of the Linux operating system. We implemented the shell, the kernel- which included process management, memory management and support for most of the system calls.
- **Mesh Processing Algorithms:** Implemented a mesh viewer, the marching cubes algorithm, Subdivision surfaces and Mesh simplification using Quadric Error Metric- As a part of the course "Polygonal Representation of Surfaces". ([A couple of Images](#)).
- **Geometric Modelling:** Implemented a B-spline curve/Surface editor that can be used to create and manipulate B-spline curves and surfaces interactively in order to model different kinds of objects. ([Some Images](#)). Other projects in this course included Interactive visualization of the differential geometry properties of Bezier and B-spline curves, Interactive manipulation of conics and a renderer for implicit surfaces.
- **Artificial Intelligence:** Elisa - the Computer Psychiatrist, The game of Tic-Tac-Toe – using game trees. The above were implemented in C.
- **Student Record Tracker-** An interactive application that maintains and interacts with a database containing records of students and employees to keep track of marks, attendance and so on and provides basic security like password access. The above application was implemented in Java (Front End GUI) and MS Access (Backend Database).

EXTRA CURRICULAR:

- Was an active member of [Computer Society of India](#) and attended [Siggraph 2003](#).
- Was the Social Welfare Minister in the School Cabinet(1995)–organized trips to orphanages and introduced mite boxes.
- Learnt Indian classical dance and music. Performed Indian classical dance in various functions and competitions in India.