

CURRICULUM VITAE

Abhishek Nagar

Present Academic Status	
Institute	: Indian Institute of Technology Delhi
Programme	: 5 years Integrated M.Tech. in Mathematics and Computing
Year	: Fifth (Final)
CGPA	: 8.83 on a scale of 10
GRE Score	: 1410
TOEFL Score	: 290
Personal Information	
e-mail	: a_nagar2002@yahoo.co.in , mau01057@ccsun50.iitd.ac.in
Phone	: +919810337457
Website	: http://www.geocities.com/a_nagar2002
Field of Interest	
Computer Vision, Graphics, Image Processing, Artificial Intelligence	
Key Courses Done	
<u>MATHEMATICS :</u> Linear Algebra, Topology and Functional Analysis, Modern Algebra, Statistical Methods and Algorithms, Applied Mathematical Techniques, Optimization Methods and Applications, Algorithms in Mathematical Programming, Finite element methods, Fuzzy Logic, Neuro-computing and Applications, Theory of Automata	
<u>COMPUTER SCIENCE AND ELECTRICAL ENGINEERING :</u> Software Engineering, Analysis and design of algorithms, Operating Systems, Advanced Computer Graphics, Database Management Systems, Supercomputing for engineering applications, Microprocessor System Design, Computer Architecture, Signals and Systems, Digital Image Processing, Computer Vision	
Summer Internships	
<u>SUMMER 2005 :</u> Development of a system for Selective combination of Visual Features using Relevance Feedback for Content-Based Image Retrieval. Key Features: <ol style="list-style-type: none">1. Stratified Feedback2. Modified Weight Update Mechanism for selection3. A number of Color, Shape and Textures features used4. Comparison with Support Vector Machine At Chair for Pattern Recognition and Image Processing, Albert-Ludwigs University Freiburg, Germany, under Prof. Hans Burkhardt.	

SUMMER 2004 :

Simulations for Phase Transitions in Elastic Many-Particle Systems.

Key features:

1. Finding the energy function that is minimized at a stable crystal structure.
2. Minimizing that function using Newton-Raphson, preconditioned conjugate gradient and trust region methods

Under Prof. Stephan Luckhaus at Leipzig University, Germany

SUMMER 2003 :

Implementation of a Datastructure for Finite Volume Algorithms applied to Diffusion Systems.

Under Prof. Stephan Luckhaus at Leipzig University, Germany

Projects (coursework)

MAJOR PROJECT (PART 1) :

Designing A Cryptosystem based on Biometrics(in progress)

Key Features:

1. Security using invariant features of fingerprints
2. Selective(hierarchical) security

Under Prof. Santanu Chaudhury, Electrical Engineering Department, IIT-Delhi

MINI-PROJECT IN COMPUTER VISION:

Automatic correspondence detection for view morphing.

Key features:

1. Implementation of the research paper “Image Interpolation Using Enhanced Multiresolutional Critical-Point Filters” Kluwer Publications
2. Embedding Planar-homographic constraints.

Under Prof. Santanu Chaudhury, Electrical Engineering Department, IIT Delhi

IMAGE PROCESSING:

* Implementation of “Image Reconstruction from projections using a Genetic Algorithm” (IEEE 1995)

* Implementation of “Corner Detection and Interpretation on Planar Curves using Fuzzy Reasoning” (PAMI 1999)

* Implementation of “Recovering Affine Motion and Defocus Blur Simultaneously” (PAMI 1998)

Under Prof. S.D. Joshi, Electrical Engineering Department, IIT Delhi and Dr. Rajesh Bhat, Computer Service Center, IIT Delhi

ADVANCED COMPUTER GRAPHICS :

* Designed chess-men using B-splines and a chess board on which the chess-men could be moved as desired.

* Implementation of Recursive Ray Tracing

Key features:

1. Constructed Solid Geometry modeling
2. Transparency refracted and non-refracted
3. Adaptive recursion depth control

4. Anti-aliasing
5. Octree used for speed-up
6. Distributed ray tracing for soft shadows, blurred reflections, blurred refractions, depth of field, etc.

* Layered Character Animation (Lizard) generated using Maya software.

* Implementation of the research paper "Motion Synthesis from Annotations"
SIGGRAPH'03

Under Dr. Prem Kalra, Computer Science Department, IIT Delhi and Dr. Jayshree Santosh, Computer Service Center, IIT Delhi

EMBEDDED SYSTEMS :

Micro Processor based design of Traffic Lights Synchronization System.

Key features:

1. Used 8051-architecture microProcessor.
2. Master-Slave approach
3. Back-Propagation neural network
4. Used RF module for wireless communication

Under Prof. M.Balakrishnan, Computer Science department, IIT Delhi

Computer Related Skills

LANGUAGES : Pascal, C, C++, Java
 PACKAGES : Matlab, Oracle, Maya
 OPERATING SYSTEMS : Linux, Windows, Solaris

Academic Achievements

1. Rank 1st in my department.
2. Entitled to change in department from Chemical Engg. to Math. and Comp.
3. Awarded Anandpuri scholarship of Rs.1000 p.m.
4. Receiving a stipend of Rs.5000 p.m. for T.A'ship.
5. Ranked 7th in the Punjab State Engineering College Entrance Examination.
6. Ranked 5th in the Delhi University Engineering College Entrance Examination.
7. Ranked 4th in the entrance examination of Engineering College Chandigarh.

Extra-Curricular Activities

I have got rigorous training under National Cadet Corps at school as well as at college and have attended the National Integration Camp (camp organized for selected NCC cadets all over the country to enhance their disciplinary skills).