Dibyendu Mondal

+1(404)477-9483 • dibyendu@gatech.edu • www.prism.gatech.edu/~dmondal6

Education

Georgia Institute of Technology **Atlanta, GA**
College of Computing Expected May 2019
- Master of Science in Computer Science with specialization in Computer Graphics, **GPA: 4.0/4.0**

Indian Institute of Technology Bombay **Mumbai, India**
Computer Science and Engineering Department August 2017
- Bachelor of Technology(with Honors) in Computer Science and Engineering

Publications

- Raksha Sharma, **Dibyendu Mondal**, Pushpak Bhattacharyya: *A Comparison among Significance Tests and Other Feature Selection Methods for Sentiment Analysis: A First Study*, CICLING 2017, Budapest, Hungary
- Raksha Sharma, **Dibyendu Mondal**, Pushpak Bhattacharyya: *Statistical Significance Tests and Its Impacts in Sentiment Analysis*, Accepted Tutorial in 13^{th} International Conference on Natural Language Processing 2016, Varanasi, India

Research

Real Time Mesh Simplification on GPU
Guide: Prof. Amitabh Varshney, University of Maryland Summer 2018
- Implemented a parallel version of the Quadric Error Metric method to perform Mesh Simplification on GPU using CUDA
- Simplified the mesh in Real Time in under 100ms compared to the traditional 700ms for a serial implementation

Undergraduate Thesis: Reconstruction from multiple Depth Sensors
Guide: Prof. Parag Chaudhuri & Siddhartha Chaudhuri, CSE Dept, IIT Bombay Autumn 2017
- Designed a system that scans a human body using low-cost commodity Depth Sensors
- Robustly reconstructed a synthetic mesh of a person using these partial, noisy scans

Study of Significance Tests as Feature Selection Method for Sentiment Analysis
Guide: Prof. Pushpak Bhattacharyya, CSE Dept, IIT Bombay 2016
- Studied and Compared various feature selection methods like TFIDF, Delta-TFIDF, Relief, χ^2 test and t-test
- Analysed the impact of significance tests in In-domain, Cross-domain and Cross-lingual SA in various dataset
- Concluded that t-test is more promising than any other significance test or feature selection method

Experience

Optimal NW Scheduling Strategies for Dense DSDS Deployment Scenarios
Guide: Pradeep Dwarakanath, Sr. Chief Engg., Samsung R & D Institute Bangalore Summer 2016
- Studied the behavior of secondary SIM in case of switching from one SIM to another in Dual SIM phones
- Used various probabilistic models to learn and predict the behavior of the secondary SIM
- Employed smart scheduling strategies at network to minimize the loss of "On Air" resources
- Tested the code with multiple configurations and showed improvement in resource utilization at NW

Computer Graphics, Graduate Teaching Assistant
Prof. Jarek Rossignac, CoC, Georgia Tech Fall 2018
- Designed and evaluated projects, quizzes and exams for a batch of over 120 students

Computer Programming and Utilization Lab, Teaching Assistant
Prof. Sunita Sarawagi, CSE Dept, IIT Bombay Autumn 2017
- Designed questions for labs, quizzes, exams and projects for a batch of over 150 students
- Conducted tutorial sessions for helping students in various topics

Software Systems Lab, Teaching Assistant
Prof. Sharat Chandran, CSE Dept, IIT Bombay Spring 2016
- Designed and evaluated labs and projects for a batch of over 120 students
- Conducted tutorial sessions for helping the students in topics like django
- Awarded **TA of the Month** for excellence in work as Teaching Assistant, across all courses in the department

Key Academic Projects

Colorful Smoke Simulator
Guide: Prof. Karen Liu, CoC, Georgia Tech Fall 2018
- Implemented an interactive and real-time 2D smoke fluid simulation using a grid based Eularian approach
- Created velocity and density fields which obey Navior-Stoke equations, incompressibility and boundary conditions

Mesh Tetrahedralization
Guide: Prof. Jarek Rossignac, CoC, Georgia Tech Fall 2017
- Computed the Delauney Tetrahedralization of two given clouds of balls located at two horizontal planes
- Computed a high-resolution water-tight triangle mesh that approximates the boundary of the union of balls

Rage Race
Guide: Prof. Jeff Wilson, IMTC, Georgia Tech Fall 2017
- Created a 3D racing game in Unity which has a player with animated 3D mesh character controller having real-time control
- Implemented a real-time steering, path planning and state-machine based AI which controls 3 NPCs
- Added physics event-based feedbacks like particle effects and 3D audio

Scene Recognition with Bag of Words
Guide: Prof. James Hays, CoC, Georgia Tech Fall 2017
- Classified scenes into one of 15 categories by training and testing on a 15 scene database
- Used features like tiny images and SIFT and classifiers like nearest neighbor and linear SVM
- Achieved best accuracy of 65.5% using SIFT and linear SVM

Procedural Modeling of Cities
Guide: Prof. Siddhartha Chaudhari, CSE Dept, IIT Bombay Spring 2017
- Created a parser for a grammar of a city and parsed it to create a syntax tree
- Iterated over the faces of a manually generated road network and called a render function at each leaf node
- Probabilistically generated different types of buildings like schools, offices, residential homes etc

Object Tracking using Mean-Shift
Guide: Prof. Ajit Rajwade, CSE Dept, IIT Bombay Spring 2017
- Designed a system for real-time tracking of non-rigid objects from a moving camera using Mean Shift
- Used Bhattacharyya Coefficient based metric for better target localization

Droids in RenderMan
Guide: Prof. Parag Chaudhari, CSE Dept, IIT Bombay Spring 2016
- Designed a humanoid and a non-humanoid (BB-8) bot, inspired from the Star Wars movies
- Used multiple point lights which acted as an area light and generated soft shadows
- Used indirect illumination for Color Bleeding and Photon Mapping for Caustics
- Coded it in RSL and rendered in RenderMan, a renderer by Pixar

Technical Skills

- **Programming Languages:** C++ | Python | Bash | Processing | C# | Java | SWI-Prolog
- **Web Development:** HTML5 | SQL | Django | Bootstrap | CSS | JavaScript | jQuery | Flask
- **Data Analysis:** PyBrain | NumPy | MATLAB | Torch
- **Others:** OpenGL | Unity3D | CUDA | | Qt | PRMan | Gnuplot | LaTeX | Eclipse

Awards

- **Undergraduate Research Award** from IIT Bombay (2016)
- **TA of the month Award** from IIT Bombay (2016)

Leadership & Extra Curricular

- Represented CSE class of 2017 in Department UG Council and other Intra Dept. Events
- Co-organized various Hackathons by Microsoft, Facebook and Web and Coding Club, IIT Bombay
- Runner up in Make a Difference hackathon conducted by College of Computing, Georgia Tech
- Participated in various Hackathons conducted by Microsoft code.fun.do, Facebook, Google Developers Group, Angel Hack in Bombay Stock Exchange, Web and Coding Club, IIT Bombay
- Reached National Finals of Code Uncode'14, a hunt for secure programmers by EC Council
- Participated in Build the Shield, a national level hacking contest hosted by Microsoft India