Microsoft Research India
TechVista Delhi 2007
13th October 2007
Student Research Projects Nomination Form

<u>**Criteria**</u>**:**

- Students enrolled in Computer Science and Electrical Engineering.
- Nominated student can be a post graduate or a PhD student.
- The research project could be individual or team-based.
- Space will be available to put up a 3'x4' poster and a small table to set up one PC. Therefore the Research project should be a poster or use only one PC for demo and/or presentation.
- Microsoft Research India will provide travel and accommodation for the chosen candidates for their visit to Delhi to participate in TechVista.
- Upto a maximum of **FOUR projects** per institution.
- Please send back this form by **September 15, 2007.**

Project 1

Title	
	NECTAR: **N**ash **E**quilibrium **C**ompu**T**ation **A**lgorithms and **R**esources
Abstract (max 250 words)	Game theory is a mathematical tool to model and study conflict and cooperation among rational and intelligent agents. In the second half of the twentieth century, it has found widespread use in a gamut of applications. Many contemporary research problems in electronic commerce, network economics, and Internet analytics use game theory in a critical way. Analysis of games involves computing fixed points called equilibrium points. The brilliant notion of Nash equilibrium, invented in 1950 by Nobel laureate John Nash, is an example of such fixed points. The problem of computing the Nash equilibria of games is now universally acknowledged as one of the most challenging computational problems. Game theorists and more recently computer scientists have designed many innovative algorithms for computing equilibrium points in different classes of games. However, there are currently very few tools available that provide efficient implementation of the

	existing algorithms, with a few exceptions like GAMBIT.
	NECTAR is a game theory computational environment that has been created at the E-Commerce Lab. It has been designed following best practices in software engineering. NECTAR includes implimentation of all well known algorithms with ingenious use of data structures and code optimization. NECTAR is designed to serve the computational needs of game theory researchers and we believe it has many distinctive features in relation to the existing tools.
	As part of the NECTAR project, we continue to enhance the tool with implementation of newer algorithms and development of our own algorithms.
Related papers	R.D. McKelvey, A. McLennan, "Computation of equilibria in finite games," Handbook of Computational Economics, in: H. M. Amman & D. A. Kendrick & J. Rust (ed.), Handbook of Computational Economics, edition 1, volume 1, chapter 2, pages 87-142, Elsevier, 1996.
Web links related to project	http://lcm.csa.iisc.ernet.in/hari/nectar/
Project related tags/ keywords	Game theory, Nash equilibrium, fixed points
Professor(s) involved as collaborators and/or guides	Prof. Y. Narahari

Student Name	Department	Email	Phone
Sujit P. Gujar	CSA	sujit@csa.iisc.ernet.in	09845654259
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Project 2

Title	
Abstract (max 250 words)	
Related papers	
Web links related to project	
Project related tags/ keywords	
Professor(s) involved as collaborators and/or guides	

Student Name	Department	Email	Phone

Project 3

Title	
Abstract (max 250 words)	
Related papers	
Web links related to project	
Project related tags/ keywords	
Professor(s) involved as collaborators and/or guides	

Student Name	Department	Email	Phone

Project 4

Title	
Abstract (max 250 words)	
Related papers	
Web links related to project	
Project related tags/ keywords	
Professor(s) involved as collaborators and/or guides	

Student Name	Department	Email	Phone