NEWSLETTER CS

DEPARTMENT OF COMPUTER SCIENCE

' NEWS N VIEWS '

March 2010 Issue

We Aim To Inspire You

ACM CHAPTER

The CIIT Lahore has student chapter of ACM. It has organized a seminar on "AI at work: The projects at RICE Group LUMS" The seminar was delivered by Dr. Mian M. Awais, associate professor School of Science and Engineering, LUMS, Lahore on 1 Apr 2010 at seminar room of CS dept of CIIT Lahore.

Dr. M. Awais received his MSc and PhD degrees in Neural Networks/Applied Artificial Intelligence from Imperial College, University of London, UK in 1996 and 2000 respectively. Currently, he is an Associate Professor at Department of Computer Science, Lahore University of Management Sciences (LUMS), Lahore, Pakistan. His research interests include applied artificial intelligence, soft computing, evolutionary and learning algorithms.

Artificial Intelligence (AI) is the area of computer science focusing on creating machines that can engage on behaviors that humans consider intelligent. The Robotics and Intelligent Computing (RICE) group at LUMS is dedicated to conduct research projects in the areas of Artificial Intelligence and robotics, speech and language processing, genetic algorithm based optimization, soft computing, learning through imitation in robot, and statistical learning. The talk will briefly describe some of the projects presently being pursued in the group.
Senior undergraduate, graduate students and interested faculty members are invited to attend the seminar.

RECTOR

The Rector of CIIT, sitara-e-imtiza, gave a talk on 11 March 2010 at CS seminar room. on how to further improve teaching and research. The audience was about 70 PhD members from the entire faculty of Lahore campus. At the close of the talk the audience was quizzed as to what the third most important task besides teaching and research should be. A number of suggestions were hurled, out of which the one form a lady audience seemed to coincide with his own concept and that was COMMUNITY SERVICVE. The session was outstanding in the sense of warmth, encouragement and achievements. At one point when someone form the audience raised the issue on funding for his project which he could not get from traditional resources, the rector abruptly pleased him saying he would all-out support his project and finance it once he receives his estimate.

INTERVIEWS

Dr Ghalib Assad Ullah Shah, who currently is employed as assistant professor at NUST in the Department of Computer Engineering and has done PhD in computer engineering from the Middle East Technical University Anchra, Turkey has been recommended for a position of assistant professor by the CS dept. of CIIT Lahore. His specialization is in wireless networking. He has one of his old teachers at LUMS who recommended him to apply at the CIIT Lahore, a testament that CIIT is a good paymaster and has a good research environment.

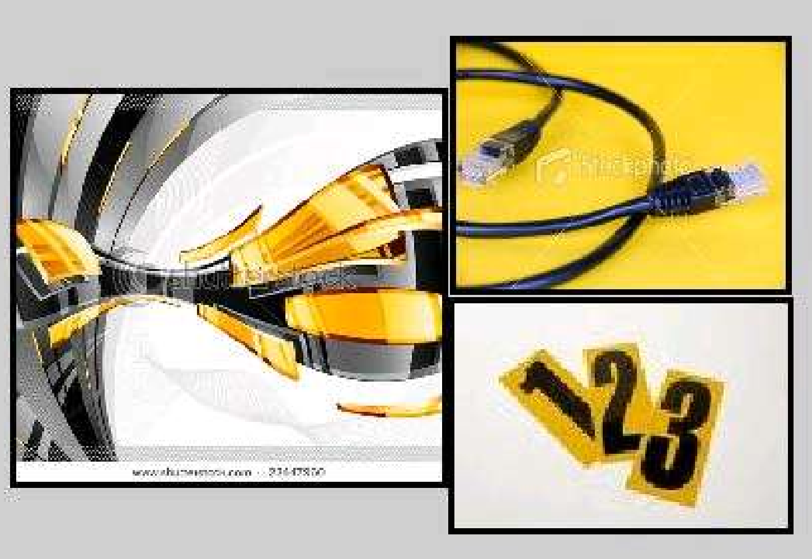
Future Internet and Nordindid Race

By IMRAN RAZA

The first ARPANET link between University of California and Stanford Research Institute on October 29, 1969 led to current Internet architecture. The Internet architecture has been able to withstand the unparalleled technologies and applications' growth. It has been patched over the years since its inception to common world supporting (r)evolutionized developments such as semantic web, web 2.0, User Centric Media (UCM), YouTube, Facebook, Telepresence, VoIP, Mobile Ad hoc Networks (MANETS), Wireless Sensor Network (WSN) and many more. There is no doubt that the Internet has reached its limits and is ossified, though it is not broken. Current Internet architecture may not able to include critical future requirements un-disruptively. It is time to rethink current Internet architecture and associated set of protocols. The future Internet architecture must be secure, manageable, flexible, scalable, and compatible with wireless and sensor networks and should support new applications and services.
National Science Foundation (NSF), USA initiated Future Internet Design (FIND) and Global Environment for Network Innovation (GENI) projects in 2006 to design and test future internet architecture. European Union (EU) established a European expert group "Future Internet Research and Experimentation (FIRE)" to explore radically better technologies for future Internet. Similar work is going on in Canada, Japan, China and South Korea. GENI Research Plan version 4.5 was presented in 2007 identifying future internet design challenges & opportunities, grand challenges, foundational challenges and opportunities, building blocks, architectural implication of new network technology and nature of experimental systems research. Functional requirements of GENI are supporting multiple simultaneous experiments, generality, real applications and experimenters. Similarly, Germany has established over 170 nodes G-Lab fostering experimentally driven research to exploit future internet technologies.

Is Nordindid race ready for future Internet? Have we identified all possible technologies and features of future Internet imperative to reach deprived people of Nordindid race? A few days ago, I had a very interesting discussion with my colleagues about the scientific contribution of our race, the Nordindid race (Pakistan and north India) subspecies of Caucasoid race. It was surprising to conclude that there aren't any major scientific inventions by our race, however, we were unable to establish its reasons. May be we are following footprints of our ancestors and happy in adapting new technologies and developments rather than inventing new ones. The whole world is proposing network standards and technologies as per their needs to be included in future Internet architecture. There is no such initiative or proposal from our race representing their prospective of future Internet. Huge percentage of our race doesn't have access to current Internet and this digital divide is likely to prevail if we do not propose/invent future Internet architecture technologies and applications to reach poor with minimal cost and full features. Because, FIND, GENI, FIRE and other similar projects do not propose any thing to outreach except the One Laptop per Child (OLPC) initiative by MIT. OLPC is good for toy application but not for computationally extensive applications.

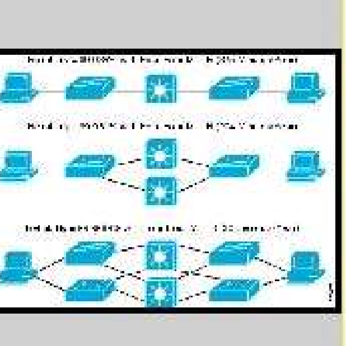
A complete framework for future Internet should be proposed from Nordindid race and developing countries perspective. Future Internet should provide the last-mile connectivity in tough terrains. It must provide cost effective and high tolerance wireless connectivity in challenging environments. A wireless solution with tolerance to connection break ups, signal fading, mobility, and signal losses is required providing cognitive management to very large scale heterogeneous wireless networks. Research community should participate in future Internet development. No doubt we have many fronts such as terrorism, injustice, poverty, etc. to fight and it is difficult to establish anything similar to GENI here. But we can use federating testbeds such as Emulab, Planet lab, Orbit and GENI slice for our experiments. Planet lab consist 1085 nodes at 498 locations and only two nodes are in Pakistan at LUMS. Emulab is run by Flux group, School of Computing at University of Utah, USA having hundreds of users worldwide but there are only two users from Pakistan, one in Islamabad and the other is Computer Networks Research Center (CNRC), Computer Science Department at CIIT Lahore. We have started a project on future Internet for proposing technologies and set of protocols to outreach Nordindid race. We need to channelize our research directions to propose/invent future Internet technologies for our race using whatever facilities available.



PUBLICATIONS

1 Location based routing without knowing node-positions for wireless sensor networks: a ring zone model based approach

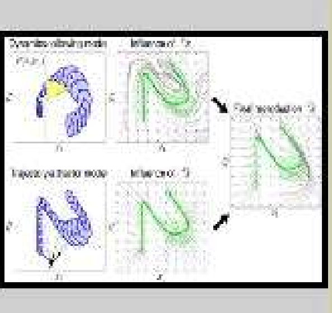
Rab Nawaz, Kashif Bilal, Sajjad A. Madani, Taimoor Khan* {rabnawaz, kashifbilal, madani,}@ciit.net.pk, *muhammad.taimoor.khan@risc.uni-linz.ac.at COMSATS Institute of Information Technology, Abbottabad, Pakistan *Johannes Kepler University, Linz, Austria



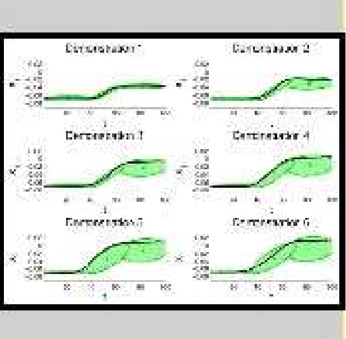
Abstract:
Restricted energy, processing, and memory motivate to design novel routing protocol for sensor networks. This paper proposes a new multi-hop Routing Algorithm named energy efficient protocol using Ring Zone model (RARZ). The protocol is light weight, does routing decisions based on remaining energy of nodes, and performs location based routing without the need for the nodes to know their positions. The protocol divides the network into different rings around the base station. Each node assign itself to a particular ring known by a ring ID. Multi hop routing is performed and nodes within inner rings carry data for the outer rings towards the base station.
The protocol is compared with well known protocols including An Address Light Integrated MAC and Routing Protocol for WSN (AIMRP), Ad-Hoc On-Demand Distance Vector (AODV) and flooding. Simulation results show that RARZ outperforms AIMRP, AODV, and flooding in terms of end to end delay, average hop count, and energy consumption.

Keywords --- clustering algorithms, energy aware, routing protocol, and wireless sensor networks

2 Autonomous Trajectory Learning using Free Configuration-Eigenspaces

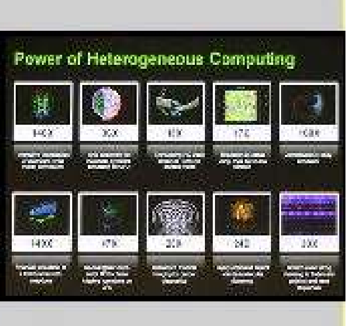


Tauseef Gulrez
IEEE Symposium on Signal Processing and Information Technology (ISSPIT), December 2009.



Abstract:
This paper addresses the problem of autonomous trajectory learning in unknown environments through non-point based maps directly through the laser data. Our approach to solve the problem is based upon the hypothesis that in the low-dimensional manifolds of laser scanning data, there lies an eigenvector which corresponds to the free configuration space of the high order geometric representation of the environment. The vectorial combination of all these eigen-vectors at descrete time scan-frames manifest a trajectory, and once followed and mapped onto the two control signals of mobile robot will enable it to build an efficient and accurate online environment map. We demonstrate this process in robotic simulation and applied a probabilistic machine-learning aspect to find the free area liklihood which consequently builds the trajectory leading to improved map.

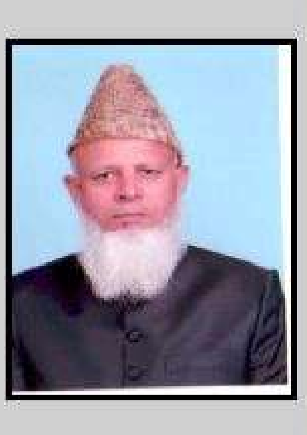
3 Towards a Software Transactional Memory for CUDA



by Daniel Cederman, Muhammad Tayyab Chaudhry, Philippas Tsigas MCC 2009 at Uppsala Sweden. (http://www.it.uu.se/research/upmarc/MCC09/prog). Formpresentation:www.it.uu.se/research/upmarc/MCC09/prog/Cederman_ mcc092.pdf).

Abstract
The introduction of CUDA, NVIDIA's system for general purpose computing on their many-core graphics processor system, and the general shift in the industry towards parallelism, has created a demand for ease of parallelization. Software transactional memory (STM) simpli?es development of concurrent code by allowing the programmer to mark sections of code to be executed atomically. The STM will then guarantee that other processes will see either none or all of the writes done in in that section. In contrast to using locks, STM:s are easy to compose and does not suffer from deadlocks. An STM can thus be seen as a concurrency control mechanism. In this paper we report on our work towards implementing a simple software transactional memory in CUDA.

4 A New Teaching Model For The Subject Of Software Project Management



M. Rizwan Jameel Qureshi, Muhammad Rafiq Asim, Muhammad Nadeem, Asif Mehmood,

Science International Journal Lahore, March 2010, Vol. 22, no. 1, ISSN: 1013-5316, CODEN: SINTE 8, pp. 295-303 (Recognized By Scientific Thomson).

5 Architecture Difference between Model View Controller and Model View Presenter

M. Rizwan Jameel Qureshi and Fatima Sabir

2nd Int. Conf. of Business Research and Technology, 23-24 January 201

Respect Your Value, Time and Power

(A piece of Advice: by Mr Muhammad Nadeem, Lecturer CS)

Youth is the golden age
In which you can break the cage
Read the Holy Book page by page
Lead the Nation with passion

Try to sky at every stage
Never lose heart in case of defeat
Start to run then run to fly
Earth not, limit is the sky

You would have to have to know
Answer available to every how
You just initiate the process
Results should be like rainbow

Remember to know Allah is there
When you find difficulty any where

Days come days gone
Nights come nights gone
Storm come storm gone
People succeeded who remain on

Time and tide wait for none
Be ready and prepare before any one

You are the best not go for rest
You are in the world of competition
Not in the world of sleeping and bed rest
Pain is everywhere in north, south, east and west
Every run is required in one -day & test
Every second is important before any task &Test

Come on time, never be late
Don't provide a chance of fool-stage
You will have to break any gate
When you know there is no any bound-age

Those who try again and again
Nadeem, they never be stopped by any pain