



# rajalekhā news

Department of Mechanical Engineering  
RVR & JC College of Engineering, GUNTUR - 522 019

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## CHANGE, CREATIVITY AND INNOVATION

Change involves moving from one condition to another. But change is not necessarily innovation. A church that becomes a sports gym club has undertaken a radical change but it has not innovated. There are plenty of other gym clubs. But a church that combines prayer meetings with aerobic exercise classes has innovated. Innovation is bringing something new into existence. Similarly, a company that fires half its workforce in order to cut costs has undertaken a major change. But a company that finds a fundamentally new way to reach and serve its customers has achieved an innovation.

A person or organization that is creative is not necessarily innovative. Creativity is the ability or talent to create. It is about generating ideas. Innovation is the implementation of the new. Innovation means taking creative ideas and making them real, implementing them. Innovation is not just releasing new products. It also encompasses implementing new business processes, fresh ways of doing things, radical alliances, brilliant new routes to market and business strategies.

Creativity must be viewed as a means to an end and not an end in itself. The end is innovation – the realization of an idea. Uncontrolled creativity without any discipline or process of innovation is at best distracting and at worst harmful to the organization.

Creativity needs to be focussed on the corporate goals and must serve as a funnel into the innovation process. Innovation means taking the most promising ideas and testing them for real. Not all will succeed; many will fail. Despite some failures along the way, the people in a truly innovative organization are always looking for new and entrepreneurial ways of achieving their goals.

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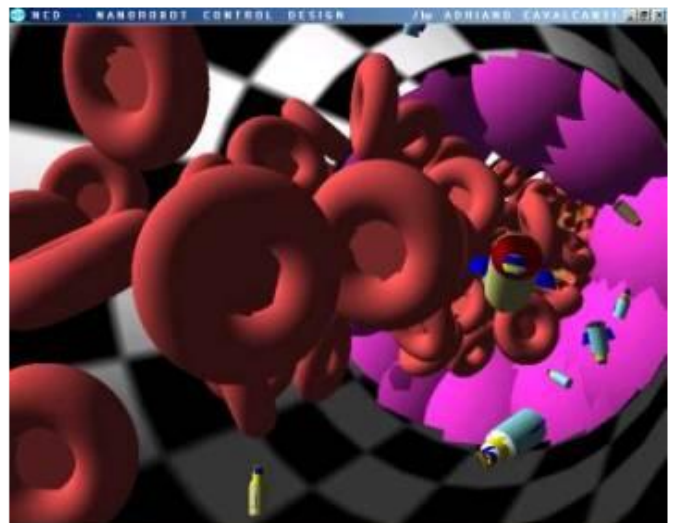
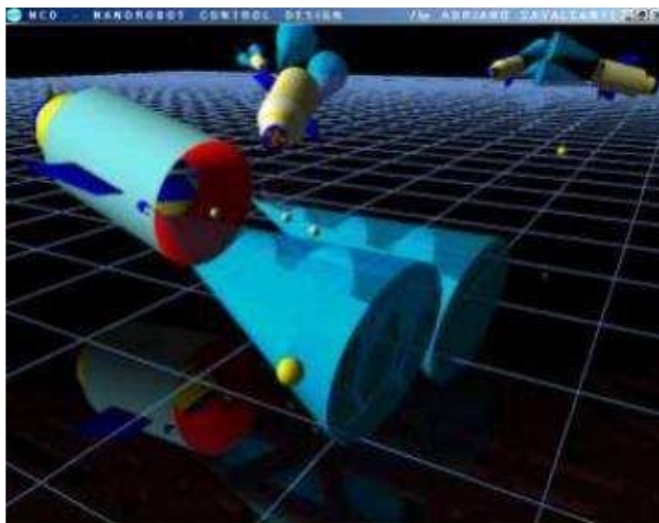
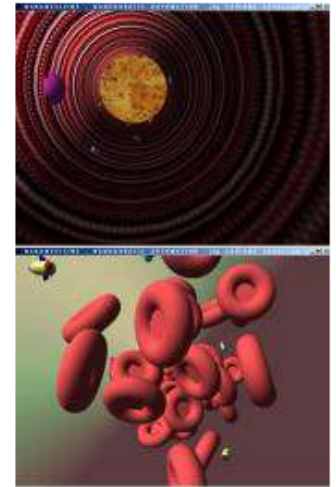
**Student  
Corner**

## Technical Article



### NANOROBOTICS

A new approach within advanced graphics simulations is presented for the problem of nano-assembly automation and its application for medicine. The problem under study concentrates its main focus on nanorobot control design for molecular manipulation and the use of evolutionary agents as a suitable way to enable the robustness on the proposed model. Thereby the presented works summarize as well distinct aspects of some techniques required to achieve successful integrated system design and 3D simulation visualization in real time.



Initial uses of nanorobots to health care are likely to emerge within the next ten years with potentially broad biomedical applications. The ongoing developments of molecular-scale electronics, sensors and motors are expected to enable microscopic robots with dimensions comparable to bacteria. Recent developments on the field of biomolecular computing has demonstrated positively the feasibility of processing logic tasks by bio-computers, which is a promising first step to enable future nanoprocessors with increasingly complexity. Studies in the sense of building biosensors and nano-kinetic devices, which is required to enable nanorobots operation and locomotion, has been advanced recently too. Moreover, classical objections related to the real feasibility of nanotechnology, such as quantum mechanics, thermal motions and friction, has been considered and resolved and discussions about the manufacturing of nanodevices is growing up. Developing nanoscale robots presents difficult fabrication and control challenges. The control design and the development of complex integrated nanosystems with high performance can be well analysed and addressed via simulation to help pave the way for future use of nanorobots in biomedical engineering problems.

#### ALLEN STRIKE

Don't compare yourself with anyone in this world. If you do so, you are insulting yourself

#### LEO TOLSTOY

Everyone thinks of changing the world, but no one thinks of changing himself...



# Nanorobots inside Our Bodies

In this very short article, *Genome News Network* (GNN) looks at the work of a Brazilian researcher, Adriano Cavalcanti, and his colleagues. Cavalcanti is working in nanorobotics, an emerging field in medicine which states that nanorobots soon will travel inside our bodies, digging for information, finding defects or delivering drugs. The GNN article contains spectacular images, and Cavalcanti's page about Nanorobotics Control Design includes additional ones. Even if the computer-generated images are impressive, please notice that real uses of nanorobots for health care will only appear progressively within the next ten years.

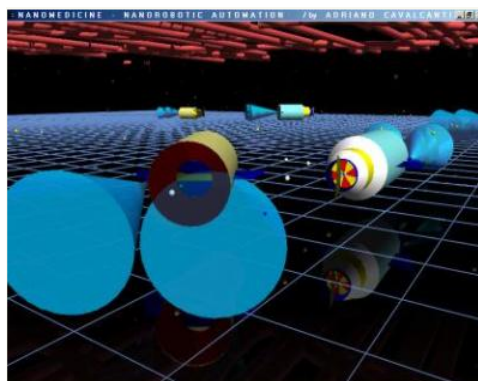
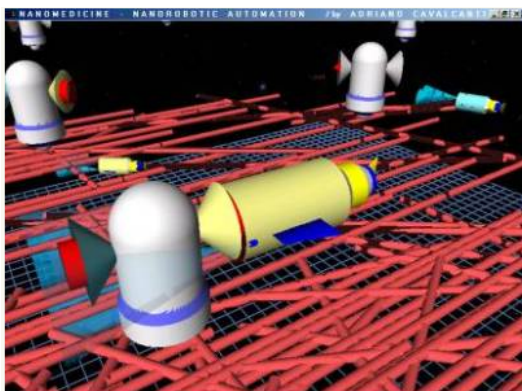
The GNN article is so short that I am reproducing here almost entirely, but without the images.

The future of medicine will include microscopic robots that travel around the human body, collecting information and making minor repairs. At least that's the view of researchers who are working in the emerging field known as nanorobotics.

If their designs can be realized, "nanorobots" might one day detect and break apart kidney stones, clear plaque from blood vessels, or ferry drugs to tumor cells.

The images in the article are computer screenshots showing nanorobots in simulated environments inside the body.

All the images below belong to Adriano Cavalcanti. The two first ones come from **an article** featured in the *Computer Graphics and Geometry Journal*, "Nanosystem Design with Dynamic Collision Detection for Autonomous Nanorobot Motion Control using Neural Networks." The third one has been extracted from **a research paper** which will be presented at the ASME 28th Biennial Mechanisms and Robotics Conference, Salt Lake City Utah, USA, September 2004 under the name "Nanorobotics Control Design: A Practical Approach Tutorial" (PDF format, 10 pages, 1.21 MB).



GNN adds that the researchers developed a program called the Nanorobot Control Design (NCD) simulator to test designs on computers and create these images.

According to Cavalcanti, "The NCD simulator consists of several modules that simulate the physical conditions, run the nanorobot control programs determining their actions, provide a visual display of the environment in 3-D, and record the history of nanorobot behaviors for later analysis."

Let's leave the conclusion to Cavalcanti on his own site mentioned above.

Initial uses of nanorobots to health care are likely to emerge within the next ten years with potentially broad biomedical applications. The ongoing developments of molecular-scale electronics, sensors and motors are expected to enable microscopic robots with dimensions comparable to bacteria.

Sources: Edward R. Winstead, *Genome News Network*, August 19, 2004; *Computer Graphics and Geometry Journal*, Vol. 5, no. 1, pp. 33-49, May 2003; Adriano Cavalcanti website and research papers

## Time Value

- ✚ To realize the value of **ONE YEAR**, ask a student who failed a grade.
- ✚ To realize the value of **ONE MONTH**, ask a mother who gave birth to a premature baby.
- ✚ To realize the value of **ONE WEEK**, ask the editor of a weekly newspaper.
- ✚ To realize the value of **ONE HOUR**, ask two lovers who are waiting to meet.
- ✚ To realize the value of **ONE MINUTE**, ask a person who missed the plane.
- ✚ To realize the value of **ONE-SECOND**, ask a person who just avoided an accident.
- ✚ To realize the value of **ONE MILLISECOND**, ask the person who won a silver medal in the Olympics

## Convocation address



Conscience is the light of the soul that burns within the chambers of our psychological heart. It is as real as life is. It raises the voice in protest whenever anything is thought of or done contrary to the righteousness. Conscience is a form of truth that has been transferred through our genetic stock in the form of the knowledge of our own acts and feelings as right or wrong.

A virtuous and courageous person can alone use the instrument of conscience. He or she can alone hear the inner voice of the soul clearly. In a wicked person this faculty is absent. The sensitive nature of his/her conscience has been destroyed by sin or corruption. Hence he or she is unable to discriminate right from wrong.

By  
Dr. A.P.J.ABDUL KALAM  
at Visweswaraiah Technological University  
Belgum.  
On 25<sup>th</sup> Feb 2007.



### Research Papers Published in Journals :

- ✚ **G.Chaitanya** , J.Suresh Kumar and **Kolla Srinivas**, “Optimization of Axial flow Compressor stage using NSGA-II Technique”, ARPN Journal of Engineering & Applied Sciences , Vol 5, No:12 , pp 1-5. ISSN :1819-6608.
- ✚ **K.R.Kotaiah**, **K.J.Babu**, **Kolla Srinivas**, “The Impact of cutting conditions on cutting forces and chatter length for steels and aluminium”, The Journal of Institution of Engineers, India, Mechanical Engineering Division , Vol91. Pp3-10, April 2010.
- ✚ **N.Govind** , D.Nageswara Rao , N.Ramanaiah , “ Effect of micro structural changes on mechanical properties of friction stir welded Nano SiC reinforced AA6061 Composites” , International Journal of Engineering Science and Technology(IJEST) , Vol2(11), 2010 . 6491-6499. ISSN : 0975-5462.

### Research Papers Published in Seminars/Conferences/Workshops(with ISBN no):

- ✚ **D.Sameer Kumar** , **Dr. V.C. Das** , **Dr. K.Ravindra** , “Optimization of process parameters on AWJC of INCONEL690 using Ant Colony Optimization” , proceedings of Golden jubilee National Conference on Recent Advances in Manufacturing (RAM2010), at SVNIT , Surat , during 19-21 July 2010.pp 96-102.ISBN: 978-93-80697-05-5.
- ✚ **B.Ramgopal Reddy** , K.Ramji and B.Satyanarayana , “Evaluation of Effective properties of CNT based Composites using Numerical Homogenization”, Proceedings of 4<sup>th</sup> International Conference on Advances in Mechanical Engineering ICAME, Sardar Vallabhai National institute of Technology(SVNIT) , Surat during September 23-25,2010. pp:115-119.
- ✚ **Srinivasa Rao.G** ,Neelakanteswara Rao.A , “Tool parameters optimization using technique for order preference by similarity to ideal solution ”, Proceedings of 4<sup>th</sup> International Conference on Advances in Mechanical Engineering ICAME, Sardar Vallabhai National institute of Technology(SVNIT) , Surat during September 23-25,2010. pp:301-306.
- ✚ **C.Srinivas** , K.Ramji ,B.Satyanarayana, R.naveen , **Ch.Devaraj** , “Designing the layout of single and multi-rows flexible manufacturing system by Ant Colony Optimization Meta Heuristic ”, Proceedings of 4<sup>th</sup> International Conference on Advances in Mechanical Engineering ICAME, Sardar Vallabhai National institute of Technology(SVNIT) , Surat during September 23-25,2010. pp:259-264.
- ✚ **N.V.V.S.Sudheer** , K.V.J.Rao ,**G.Sreenivasa Rao** , “Optimal Cutting conditions in turning of Al/SiC MMC based on Experiment and a Linear Programming Model”, Proceedings of 4<sup>th</sup> International Conference on Advances in Mechanical Engineering ICAME, Sardar Vallabhai National institute of Technology(SVNIT) , Surat during September 23-25,2010. pp:514-516.
- ✚ **M.G.Krishna** , **K.Praveen Kumar**,K.K.Kishore,N.B.R.Mohana Rao,J.Babu Rao, “Investigation of Copper cored Aluminum & its alloys by Direct Extrusion”, Proceedings of 4<sup>th</sup> International Conference on Advances in Mechanical Engineering ICAME, Sardar Vallabhai National institute of Technology(SVNIT) , Surat during September 23-25,2010. pp:321-324.
- ✚ **K.Praveen Kumar**, M.G.Krishna , K.K.Kishore, N.R.M.R Bhargava, J.Babu Rao,” Structure Property realtions of Al-Cu binary alloys & Al-Cu –Mg ternary rich alloys”, Proceedings of National Conference on Advances in Materials And Product Design AMPD-10 at Sardar Vallabhai National institute of Technology(SVNIT) , Surat during 22-23 Nov - 2010 , pp:181-186.
- ✚ **Srinivas Chandana**, B.Satyanarayana, K.Ramji, R.Naveen and **B.Ramgopal Reddy** “A Genetic Algorithm Approach for the Design of Single and Multi Row Flexible Manufacturing System”, Proceedings of 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, December 13-15, 2010, College of Engineering, Andhra University, Visakhapatnam, Volume 1, pp.483-489.
- ✚ **Dr.G.Srinivasa Rao**,A.Neelakanteswara Rao, “A Genetic Algorithm approach to multi objective optimization in turning” Proceedings of 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, December 13-15, 2010, College of Engineering, Andhra University, Visakhapatnam, Volume 1, pp.1199-1204.

- + **Srinivasa Rao.G**, A.Neelakanteswara Rao , **N.V.V.S. Sudheer** ,”Performance evaluation of carbide inserts on surface roughness in hard turning”, Proceedings of 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, December 13-15, 2010, College of Engineering, Andhra University, Visakhapatnam, Volume 1, pp.647-652.
- + **B.Ramgopal Reddy**, K.Ramji and B.Satyanarayana, “Prediction Of Effective Mechanical Properties Of CNT Reinforced Composites - FEA Approach ” Poster Proceedings of 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, December 13-15, 2010, College of Engineering, Andhra University, Visakhapatnam.pp:479-484.
- + **Srinivas Chandana**, B.Satyanarayana, K.Ramji “Quatitative Analysis Of Automated Guided Vehicles ”, Poster Proceedings of 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, December 13-15, 2010, College of Engineering, Andhra University, Visakhapatnam. Pp 107-111.

#### Seminars/Workshops/Conferences attended by the Faculty :

- + **Dr.V.C.Das** Professor , “QIP Short Course on Developing Tools for Biomedical Applications”, organized by IIT Gowhati, during 20-24 September, 2010.
- + **Dr. G.Srinivasa Rao**, Professor , “Indo-Russian Joint Workshop On Computational Intelligence and Modern Heuristics in Automation and Robotics (CIMHAR)”, organized by SVNIT , Surat during September 20-22 ,2010.
- + **Dr.G.Srinivasa Rao**, professor, **B.Ramgopal Reddy**, **NVVS Sudheer**, Asst. Professor, **K.Praveen Kumar**, Lecturer attended 4<sup>th</sup> International Conference on Advances in Mechanical Engineering ICAME, Sardar Vallabhai National institute of Technology(SVNIT) , Surat during September 23-25,2010.
- + **B.Ramgopal Reddy**, Asst. Professor, attended “International Conference on “NANO Technology - Materials & Composites for Frontier Applications” (NANOCON)during 14th & 15th October, 2010 at Bharathi Vidyapeeth Deemed University, Pune, India.
- + **Dr. G.Srinivasa Rao** , Professor attended Pre Conference Workshop of 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, “Challenges in Micro and Nano Manufacturing Indian perspective in the global scenario” during December 11-12, 2010, College of Engineering, Andhra University, Visakhapatnam
- + **Dr. G.Srinivasa Rao** , Professor , **Srinivas Chandana**, **B.Ramgopal Reddy** , Asst. Professor attended 3<sup>rd</sup> International and 24<sup>th</sup> AIMTDR conference, December 13-15, 2010, College of Engineering, Andhra University, Visakhapatnam.

#### Higher Degree Awarded

**Ch.Deva Raj** , Lecturer , Department of Mechanical Engineering. has been awarded M.Tech degree in CAD/CAM by Acharya Nagarjuna University , Guntur, in July 2010.

#### Registration for Higher Degree

- + **Sri.D.Sameer Kumar**, Lecturer, has registered for Ph.D at Andhra University, Visakhapatnam on topic of “Optimization of composite pressure vessel design using Swarm Intelligence”, in May2010.
- + **Smt.D.Swapna**, Lecturer, has registered for Ph.D at Andhra University, Visakhapatnam on topic of “Rapid Prototyping technology”, in May2010
- + **Sri.V. Rama koteswara Rao**, Lecturer, has registered for Ph.D at Andhra University, Visakhapatnam on topic of “Welding Technology and its defects”, in May2010

#### Promotions to the Faculty

- + **Dr. K.Ravindra** , Professor, Mechanical Engineering was promoted as DEAN, Academic Affairs, w.e.f 01-09-2010.
- + **Dr. Kolla Srinivas** , Professor, Mechanical Engineering was promoted as DEAN, Student affairs, w.e.f 01-09-2010.
- + **Dr. G.Srinivasa Rao**, Asst. Professor , Mechanical Engineering Department , was promoted as Professor in Mechanical Engg. Department ,w.e.f 01-07-2010.

### Additions to The Faculty

Name	Designation	Date of Joining
M.Vijaya	Lecturer	12-08-2010
C.Tara Sasanka	Lecturer	18-10-2010.

### Faculty Relieved From Services :

Name	Designation	Date of Relieving
K. Krishna Kishore	Lecturer	11-08-2010
A. Sunanda	Lecturer	09-07-2010

### Any Other Information

**Dr. Kolla Srinivas** , Professor guiding Sri. Jakka Nageswara Kumar, Asst.Professor, Dept. of Mechanical Engg, JNTU Anantapur for his research work , who registered Ph.D. at JNTU , Anantapur. on the topic of “Optimum stage design of Axial flow gas turbines using Neural Network approach”, from August 2010.

## Department Activities

### New Equipment

**Mechanical Engineering Department has installed “A Computerized Variable Compression ratio Diesel Engine Test Rig” costing Rs.4.9 lakhs ,for which AICTE sanctioned Rs.4 lakhs under MODROBS Project**

### Seminars/workshops organized by the department :

- RAJMEA collaborated with IITM, Chennai students organized Robotics Workshop “**ROBOFEST – 10**” on 9<sup>th</sup> - 10<sup>th</sup> January 2010 , Around 192 students of II,III,IV/IV B.Tech of all disciplines of the college are participated and learnt about various sensors, preparing circuits and assembled the various types of Robots and successfully tested them.
- A National Level Technical students meet **MechMantra’10**, was organized by RAJMEA (RVR&JC Mechanical Engineering Association) on 5<sup>th</sup> - 6<sup>th</sup> March 2010. Around 200 students from various Institutions of Andhra Pradesh and Tamilnadu were participated.



Somayajulu, Registrar, RVRJCCE, presided over the function and Dr. K. Krishna Prasad, Secretary, Dr.KLP Public School, Guntur was the chief guest of the function and distributed prizes to the winners of various events held in MechMantra-10.

For this event The Chief Guest was Dr. G. Padmanabham, Associate director, ARCI, Hyderabad and delivered the key note lecture on “Manufacturing Solutions using Industrial Lasers”. The valedictory function was held on 6<sup>th</sup> March 2010. Sri PSS





AICTE Sponsored 2 day National Seminar on “METAL MATRIX COMPOSITES”



acted Convener & Co-Convener for the seminar.

was organized during September 29-30, 2010. A Total 40 participants, both from academia and industry personals across the country were attended. Dr K.Mohan Rao, Principal, VR Siddhartha Engineering College, Vijayawada delivered a Key note Lecture. **Dr. V.C. Das**, Professor & **K.Praveen Kumar**, Lecturer

#### Guest Lectures organized by the Department:

“Nano materials & its applications”

K.veerabrahmam, Scientist D, DRDL, Hyderabad .on September 4th ,2010.

“Leadership”

Air Commodore A.S.BAHAL, VM, Deputy Director General NCC Secunderabad. on December 6th ,2010.



#### Industrial Tours & Short Visits :

- The Mechanical Engineering Department organized a short industrial visit for **IV/IV B.Tech** (Both A & B Sections) students to **M/s. JOCIL Ltd.**, Dokiparru, Guntur Dt during 10<sup>th</sup> & 12<sup>th</sup> August 2010.

## Student Corner

#### Results Analysis :

	Total Appeared	Total Passed	Pass percentage
II / IV IInd sem	142	104	73.23
Ist year	118	70	59.32

#### Congrats To Stellar Students:

Mr.K.alyan Deepak (Y6ME850) of IV year, Ms K. Sai Dinesh (Y6ME892) , Mr. A. Sujitha (Y6ME804), K. Sushma Priya (Y6ME847) and Ch. Krishna Chaitanya (Y6ME856) have shown outstanding performance to secure top five ranks in University Examinations.

The RAJMEA like to know what is happening in your professional life. Visit the following website to update your information or let us know about your accomplishments: [www.rvrjcce.ac.in/mech](http://www.rvrjcce.ac.in/mech)