



Synergy

VOLUME 4 ISSUE 1

APRIL EDITION 2015

Editorial desk

'Synergy' is the coming together of multiple elements. This rightly represents the biomedical mix and everything that the newsletter stands for. In this last issue of ours, we keep up with the tradition of bringing to you the best of the best. It gives us immense pleasure to bring you this quarterly issue of our department magazine for the period of Jan-Feb-March 2015.

This edition includes the various achievements of our department students and faculty, working towards the common goal of enhancing the techniques in the biomedical field and thus increasing efficiency of healthcare.

Best wishes,
- Editorial team

HOD's desk

The Biomedical Engineers elegantly bridge the gap between engineers and medical professionals and serve as the cradle of **synergy** out of which arise endless opportunities and innovations.

I am overwhelmed with joy to see our students & faculty who are not only diligent, devoted, and dedicated in their efforts but are also innovative in their thinking. I wholeheartedly appreciate the new editorial team releasing the magazine "Synergy" for this year.

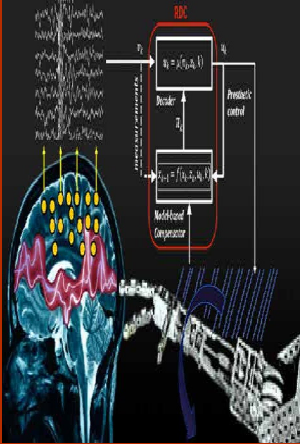


Dr. A. Kavitha
HOD/BME

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Faculty activities



Medical Image processing

*There's nothing I
believe in more
strongly than
getting young
people interested
in Science &
Engineering, for a
better tomorrow,
fall all humankind
- Bill Nye*

- **Dr.A.Kavitha** HOD, presented a talk titled “Medical Imaging” in two days national level workshop on “**Fundamental analysis & processing of image and video with computing techniques**” organized by Department of Information Technology, SSNCE on 7-2-2015.
- **Dr.A.Kavitha**, HOD presented her DST- CSRI project proposal at INSA, New Delhi on 20-3-2015.
- **Dr.A.Kavitha**, HOD gave a presentation on Centre for healthcare Technology (CHT) in RAC meeting held in our SSN campus on 29-1-2015.
- **Dr. S.Pravin kumar** (Asso.Prof), **Dr.R.Subashini**, (AP) and **Dr. V. Mahesh** (Asso.Prof), attended seminar on “**How to get published, explore international opportunities, and prepare for your career**” at the Sri Ramachandra University, Chennai on 11-2-2015.
- **Dr.Mallika Jainu**, AP conducted Ph.D synopsis presentation meeting successfully for her Ph.D scholar Ms. E. Priya on 8-3-2015 and synopsis was submitted.
- **Dr. S. Pravin Kumar**, Asso.P has participated in one day International Program on ‘**European Fellowships and Opportunities with Funding**’, organized by Alliance de International Cooperation (AIC) at Kanyakumari on 31-1-15.
- **Dr.Mallika Jainu**, AP conducted second doctoral committee meeting for her Ph.D scholar Ms. M.Gayathri on 8-3-2015.
- **Dr. R. Subashini**, AP attended monitoring committee meeting for M.S scholar Ms. Rajarajeswari at Dept of Biotechnology, Rajalakshmi Engineering college.



M.Dhanalakshmi., AP

*One man's "magic"
is another man's
engineering.
"Supernatural" is a
"null word"*



Publications

- **M.Dhanalakshmi, AP** presented paper titled "**Intelligibility modification on Dysarthric speech using HMM-based adaptive synthesis system**" in the IEEE sponsored International Conference on Biomedical Engineering (ICoBE 2015) at Bayview hotel Georgetown Penang, Malaysia organized by Universiti Malaysia Perlis, Malaysia.
- **Mallika Jainu, AP** Krishna Mohan S, published a paper entitled "**Effect of pioglitazone, quercetin and hydroxy citric acid on inflammatory markers in experimentally induced non alcoholic steatohepatitis**" in In. J. Pharm. Edu. Res, 2015; 49(2):168-173.
- **Subashini Rajakannu, AP** Sruthi Shankar, Sindhuja Perumal, Santhini Subramanian and Gnana Prakash Dhakshinamoorthy "**Biosynthesis of Silver Nanoparticles using Garcinia mangostana Fruit Extract and their Antibacterial, Antioxidant Activity**", Int.J.Curr.Microbiol.App.Sci (2015); 4(1): 944-952.
- Poongavanam. P (IV year) and **Ms. R. Nithya AP** presented a paper on '**Design of orthotic assistive exoskeleton for human hand**' in the IEEE sponsored International Conference on Engineering and Technology (ICETECH), at Rathnam technical campus, Coimbatore.
- M. Gayathri, **Mallika Jainu, AP** presented a paper titled "**Study Of Alpha Lipoic Acid On Pro Oxidative Enzymes In Diclofenac Caused Gastric Toxicity**" and published in the proceedings of Avidhadham 2015, International Conference on Contemporary Research trends in Diagnostics & Therapeutics organized by Department of Biotechnology, Anna Univeristy, Chennai.

- S. Saravana Prakash (III year) and **Dr. S. Pravin Kumar, As.P** presented a paper on '*Mobile Recording Microscope*' in the International Conference on Advance Research and Innovation (ICARI-2015), at Delhi State Centre, Institution of Engineers (India), (Engineers Bhawan), New Delhi on 31-1-2015.
- Priya .E and **Dr. Mallika Jainu** (AP) paper entitled "*Identification Of New Concepts In The Pathogenesis Of Anca Associated Vasculitis And Its Application For The Better Treatment Of Vasculitis*" accepted in FOCIS 2015, Federation of Clinical Immunology Societies, San Diego, California.
- **Sivaramakrishnan Rajaraman, AP** Ganesh Vaidyanathan, Arun Chokkalingam "*Performance Evaluation of Bio-Inspired Optimization Algorithms in Resolving Chromosomal Occlusions*" Journal of Medical Imaging and Health Informatics, 5(2), pp. 264-271, Feb 2015.
- **Mr. R. Sivarama Krishnan**, AP won the **best poster award** for his work entitled "*Ocimum Sanctum extracts coating on Biomaterial Surfaces to prevent bacterial adhesion and biofilm growth*" at the National Conference on Recent Strategies of Herbal Extracts in Life Sciences-An experimental approach, organized by the Department of Pharmaceutical Technology, Anna University, BIT Campus, Trichy.
- T. Nandini, M. Muthu Vijay, **Dr. Mallika Jainu** (AP) presented a paper titled "*Hearing Screening Tests For Newborns – An Analytic Outlook*" & published in the proceedings of International Conference on Recent Innovation in Engineering & Technology – 2015.
- S.Saravana Prakash, P.Abinaya and K.Vasavi presented a paper on '*Hand held dermal scanner*' under the guide **L.Suganthi** Asso. Prof. in the International Conference on Recent Innovations in Engineering & Technology, Salem on 14-2-2015.



FOCIS at San Diego



Mr. R. Sivarama Krishnan

Department Events

IEEE EMBS Student Chapter

Our department students together with IEEE Association have formed a student chapter and organized several programmes.

The office bearers are,

- Chairman- S.Saravana Prakash
- Vice Chair- V.Ritu
- Secretary- Vishal
- Treasurer- Vibhav
- Executive Members- P.Prabanjan
T.Atul

Pre-Launch Events:

1. One day Workshop on PRODUCT DEVELOPMENT AND RISK MANAGEMENT. on 21.01.2015
2. A lecture on "How do humans make dextrous movements: Some challenges in movement neuroscience."
3. Seminar on Basics of Arduino by Hemnath V [4th year BME].
4. Arranged a visit to Sri Ramachandra Medical college on 25-3-15.

WORKSHOP

IEEE one day national level workshop on product development and risk management. Mr. Sivakumar (Alumni, SSN-BME), M.S. (BME, ASU, USA), CTO, NEOLIGHT LLC, USA has shared his successful experiences on prototype development, solid works and regulatory requirements for FDA/CE approval, company start-up to the II/III year students on 20-1-15.



Mr. Sivakumar

GUEST LECTURE

Guest lecture was conducted for students of VI semester UG and II Semester PG. Dr. Varadhan .S.K.M, Department of Applied Mechanics, IIT Madras gave the lecture on the topic "How do humans make dexterous movements: Some challenges in movement neuroscience". Dr. S. Pravin Kumar and Dr. V. Mahesh co-ordinated the session.



Dr. Varadhan .S.K.M.

HOSPITAL VISIT

Our UG and PG students visited Sri Ramachandra Medical University on 25.03.15. Visit to the following departments: Nuclear Medicine Department, Gamma camera Radiology Department, Fluoroscopic techniques, X-ray Computed Tomography, Ultrasonography Department, Human Genetics Department.



Dr. S. Pravin kumar with UG and PG students at SRMC



Aries Biomed
Technology, Coimbatore

Manufacturers of

- Ventilators
- Diatom Oxygen System
- Nsure O2 Oxygen Analyzer
- Respiratory Consumables
- Biomedical Sensors
- Low Cost DAQ Cards
- Electronics Multifunction Card

MoU signing

SSNCE has signed a MoU with **WildBox Technologies**, Singapore at our campus on 6-2-2015. Mr.Karthikeyan, Founder of WildBox & Alumni of SSNCE, and Mrs. Kala Vijayakumar, President, SSNCE signed the MoU. Dr.S.Salivahanan, Prinicipal, Dr.A.Kavitha HOD/ BME and faculty members of BME witnessed the function.



SSN College of Engineering through Department of BME signed MoU with two companies, **Aries Biomed Technology**, Coimbatore and **Neolight LLC**, a registered company in the state of Arizona located at USA on 5-3-2015. Mr. Siva kumar, Co-founder of NEOLIGHT & Alumni of SSNCE, and Mrs. Kala Vijayakumar, President, SSNCE signed the MoU. Dr.S.Salivahanan, Prinicipal, Dr.A.Kavitha HOD witnessed the function.



Signing MoU with Aries Biomed Technology

Technical article

Imaging, the key to resetting vascular age?

Refinement in the tools that are available for assessment of atherosclerosis, as well as increasing use of systems approaches to disease, augur for a new era in cardiovascular disease prevention. These changes offer the possibility of precision medicine, allowing for a more individualised, molecular approach to therapeutic management.



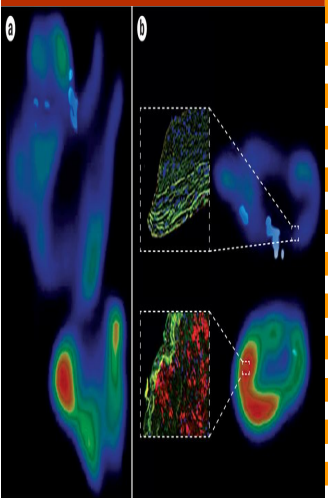
Increased understanding of plaque morphology and composition have provided impetus for improvement in imaging tools so as to better identify and target those patients at risk of coronary events. Refinement in imaging tools has made this now feasible. Inflammation is a key determinant of atherosclerotic plaque rupture. Conventional imaging techniques identify the site and severity of luminal stenosis; however, information is also needed on the inflammatory status of the plaque. Positron emission tomography imaging using the metabolic marker 18F-fluorodeoxyglucose (18FDG PET) provides a measure of arterial inflammation, a modifiable index of future atherothrombotic risk, across multiple vascular territories. Using this modality, it is possible to differentiate between inflammatory changes under low- or high-dose statin therapy in high cardiovascular risk individuals, evident as early as 4 weeks after initiation of treatment, and indicative of changes in atherosclerotic plaque inflammation. In individuals with familial hypercholesterolaemia, there was significant reduction in the 18FDG PET signal, within 3 days of lipid apheresis. As the change in low-density lipoprotein cholesterol correlated with the change in 18FDG PET signal, this lends support to a causal role of apolipoprotein B-containing lipoproteins in arterial wall inflammation, in turn suggesting a potential therapeutic target.



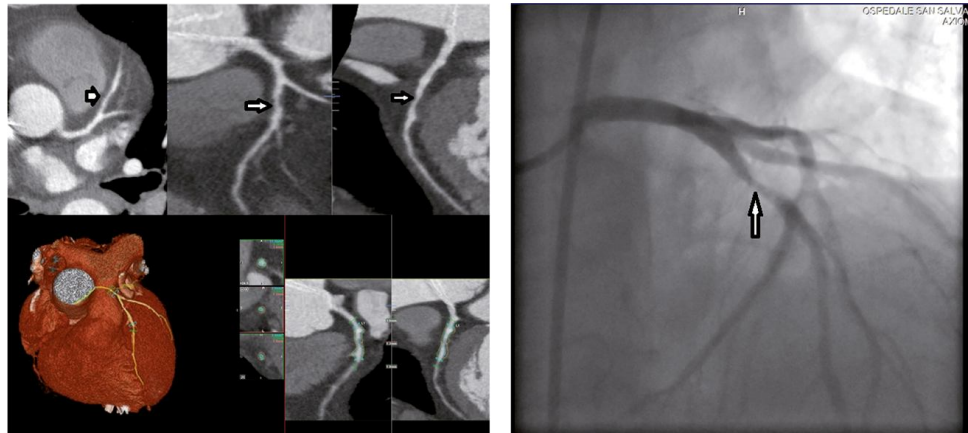
Positron emission tomography image

However, multimodality imaging offers the advantage of evaluating vascular disease at different stages. Most recently, the BioImage study in 5,808 asymptomatic individuals showed that assessment of both coronary artery calcification and 3D-ultrasound imaging identified a high prevalence of multivessel vascular disease, thereby allowing for reclassification of cardiovascular risk in lower risk subjects who would be otherwise missed with conventional assessment.

Taken together, advances in imaging not only allow for the possibility of improvement in risk stratification, but also offer the opportunity to tailor the right therapy at the right time to the right patients. Ultimately, such developments may help to reduce the risk of plaque rupture and the associated clinical complications in high risk patients.



18F-fluorodeoxyglucose (18FDG PET)



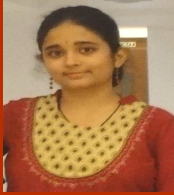
Pitfalls in coronary angiography

-Prof . Z.Fayad

Student's achievements



S. Swathi



C. Pooja



G. Shamala



Vaishali Gupta

- **Swathi .S**, final year student has been selected for best outgoing student award for this academic year 2014-15.
- More than 15 students of the IIIrd year & passed out batch students selected for research incentives on Research day for publishing their project work in journals .
- **Pooja.C** of third year participated in Techofest India Quiz on February 14th conducted at CEG Campus, Anna University and won a first prize of Rs.1500 cash.
- **Shamala. G** secured the Anna University gold medal for B.E. (Biomedical Engineering) for the year 2014.
- **Vaishali Gupta** received medal for the Anna University third rank for the year 2014.

SCHOLARSHIPS



The below mentioned students received the merit scholarship for the year 2014.

Final year - Bhattaram Sneha Priya, Yuvadarsini, Arthy. R

Swathi. S, Aarthy. B, R.S.Gayathri

Third Year—Nandhini.T, Sruthi. M, Archana. S

Second Year—Sushmitha S., Atul taneja

Lavanya Krishna, Abirami, R.



R. Yuvaraj



R. Vignesh



Imaiyan. C.R.



S. Hemavardhini

Sports

- **Yuvaraj. R AP** won 1st prize in 100 mts running and in shot- put won 2nd prize in the college annual sports day.
- **Vignesh.R** of third year, participated in the Inter-Year Athletics conducted on 20th March and won Gold (1st prize) in Shot-Put and Discus throw events.
- **P.Prabanjan** and **Imaiyan. C.R** of third year participated in the Inter-Year Athletics conducted on 20th March, 2015 and secured gold medals in the Squash event.
- Our students showcased an excellent march past during the Annual Sports Day with a tri-colored theme and secured the forth place led by **Imaiyan. C.R** and **Geethapriyaa. M.**, (IIIrd yr).

Culturals

INSTINCTS 2K15:

- **Raghul. M.**, (Final yr) **M. Muthuvijay**, **R. Vignesh**, **A. Banu Saranya**, **S. Sushmitha**, **S. Subiksha**, **S. Sudarshan**, **P. Prashanth**, **S. Dinesh**, **Saravana Prakash**, **V.D. Deepak**, **V. Loganathan**, **A. Mohammed Ikram**, **S. Namasivaya Naveen** (IIIrd yr). participated in the instinct organizing committee.
- **Sanjana. S** of final year compered the Choreo Nite event honored by chief guest Actor, Director and Dance Choreographer Prabhu Deva.
- **Aishwariya. S** of final year, **Vallabhi Venkatesh** and **Sneha Nair** of third year were a part of the N2K dance team and gave a host performance during the inauguration.
- **Hemavardhini. S** of final year took part in the host classical performance in the inauguration.

STUDENT'S ACTIVITIES

- Vishal. S.B and Atul Taneja of IInd yr attended workshop on **IoT, Sensors & Arduino, Raspberry Pi** by Solarion.
- Sanjhanaa.R.Bhatt , Lavanya Krishnan, M.Virmaya, K.Sunanda and Deepika Raman of IInd yr attended the **SYCON** event conducted at SSN.
- Atul Taneja of IInd yr participated in the **Line Follower Robots Contest** in Anna University.
- Aathira Haridas, Abirami.R, and M.Keerthana of IInd yr had attended a workshop on **Raspberry pi** conducted by Anna University on 14 &15-3-2015.
- Loganathan, Mohammed Ikram, Naveen and Deepak.V.D of third year participated in the **Shortfilm competition** held at Hindustan University.
- Sanjhanaa.R.Bhatt, Lavanya. K and Deepika R of IInd yr attended "**Teach a School**" event.
- Sanjhanaa.R.Bhatt of IInd yr completed her German B1 level and Madhuvanathi.S of second year completed her German A1 level.
- Ahila Adaikammai.Y, Bhavatharani.S, Kiruthiga.M, Narthana.V and Roshini.N of second year attended a 8 days training course on **PCR and DNA finger printing** at Bio-zone Research Technologies Pvt Ltd during December 2014.
- A.Krishna Priya IInd yr attended a workshop on **Embedded development model** using Labview.
- Lavanya Krishnan of second year was a part of the My Theatre Festival cast.
- B.Akshaya Kirithy, P.Abinaya and Jothilakshmi.A of third year participated in the Tamil Mandram, **Saral Koothu Pattarai's** Street play at IIT Madras, Saarang on January 11.
- B.Akshaya Kirithy and Nandini.T of third year organized the dramas, '**Poota Case**' and 'Pizza Muni' in the college on February 23rd 2015.
- B.Akshaya Kirithy and Nandini.T of third year participated in Street Play at Sastra University on March 20th and 21st 2015.
- Deepak.V.D of third year is a Designer of the EDC club, '**Lakshya**'.

C

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ICBSII 2015

The Department of Biomedical Engineering in Sri Sivasubramaniya Nadar College of Engineering has been successfully organizing the **International Conference on Biosignals, Images and Instrumentation (ICBSII)** since 2013. The 2nd International Conference on Biosignals, Images and Instrumentation conducted by SSN College of Engineering's Centre for Healthcare Technology (CHT) and the Department of Biomedical Engineering took place over 3-days from March 19th to March 21st, 2015 coordinated by **Dr. L. Suganthi**, Asso.Prof and **D. Kanchana**, AP.



From left: Dr. A. Kavitha, HoD -BME, SSNCE, Dr. SudhirGaneshan, Mr. KannanThiruvengadam, Ms. Kala VijayaKumar, President, SSN Institutions, Dr. S. Salivahanan, Prinicpal, SSNCE.

The day 1 started with the grand inauguration presided over by, Mr. Kannan Thiruvengadam, Director – Platinum, Aurea Inc., Austin, TX, USA. Dr. A. Kavitha, HOD delivered the welcome address for the day that focused on the success of the past conference and the departments' initiative to progress with such efforts. Dr. S. Salivahanan, Principal of SSN Institutions highlighted the achievements of the college followed by the presidential address by Ms. Kala Vijayakumar.

The first keynote speaker for the day was Dr. Sudhir Ganeshan, consultant Ortho and Spine Surgeon who delivered a highly informative talk about Spine surgery and the relevance of biomechanics. In the afternoon session, the second keynote speaker Dr. Syrpaillyne Wankhar - CMC Vellore delivered a valuable talk along with demonstration of biosignal acquisition system which is designed by bioelectronics department CMC Vellore. The event then moved onto the presentation of the first set of papers.

The day 2 started with the inspirational talk of Dr. Vijayalakshmi - Dept., of Genetics from Sri Ramachandra University, She has covered various aspects of imaging methods applied for genetic diagnosis. This was followed by presentation of papers related to Bio-image processing and instrumentation in two sessions.

The day 3 started with the informative talk of Dr. Brajesh K Kunwar - Care Hospitals, Surat, on "Advances in cardiac interventional Techniques in management of structural heart disease" and Dr. Prashant Kumar Srivatsava - Dept., of Mathematics, IIT Patna on "Mathematical Modeling of HIV Infection: in vivo". The speakers explained the role of biomedical engineers in every field and how they could contribute effectively in improving the quality of life. This was followed by the valedictory function which was presided by Dr. Prashant Kumar Srivatsava - Dept., of Mathematics, IIT Patna and our HOD. The selected abstracts and papers were published in the conference proceedings and award for the best paper was given out during the valedictory function. The ensemble of eminent scholars, researchers and budding biomedical engineers proved to be extremely beneficial for the students and saw exchange of ideas between great minds.



Dr. Vijayalakshmi - Dept. of Genetics from Sri Ramachandra University

EDITORIAL TEAM

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