SSN

DEPARTMENT OF
BIOMEDICAL ENGINEERING

SYNERGY

Volume 5, Issue 3

EDITORIAL DESK

"Science of today, is the technology of tomorrow" – Edward Teller

There existed a time, when doctors used their discretion to diagnose cases to the best of their abilities with the limited resources that were available. A new era dawned which brought in engineering practices into the world of medicine, a feat which was previously just a piece of fiction. This revolutionized the quality of patient care, the fruits of which are enjoyed till date.

This marked the beginnings of Biomedical engineering and exponential development in this field was soon to follow.

'Synergy' is a venture aimed at bringing to its readers a compilation of breakthroughs in this field within the department and around the globe. Covering the months from July to September, this edition includes events that were curated and organized by the department staff and students and how they unfolded.

EDITORIAL TEAM

STAFF EDITORS:
Ms. J. Delpha, AP /BME
Ms Laxmi.N, AP/BME

STUDENT EDITORS:
Deepika R., IV, BME
Lavanya Krishna., IV BME

DESIGN:
Vismaya M., IV BME

SNEAK PEEK

FACULTY ACTIVITIES

WORKSHOPS ORGANIZED

- 3D Printing and its Applicaions organized by **Ms R. Nithya** and **Ms. D. Kanchana** on 27.06.2016
- Hands on workshop on Cardio—thoracic Equipment organised by **Dr. V. Mahesh** and **Ms. B. Geethanjali** on 4.08.2016
- Hands on workshop in PIC microcontroller organized by **Ms. Delpha** and **Ms. Suganthi** on 1.09.2016 and 2.09.2016

PUBLICATION DETAILS

- Ms. S. Vidhusha and **Dr. A. Kavitha** HOD/BME, "Inter-hemispherical Investigations on the Functional Connectivity of Autistic Resting State fMRI " International Journal of Cognitive Informatics and Natural Intelligence 10(2):95-108. 2016 DOI: 10.4018/IJCINI.2016040105.
- **Geethanjali, B.,** K.Adalarasu, M. Jagannath, and R. Rajasekaran. "Influence of pleasant and unpleasant music on cardiovascular measures and task performance." International Journal of Biomedical Engineering and Technology, Vol 21, No. 2 (2016): 128-144.(Annexure 1).
- N.P. Guhan Seshadri, **B. Geethanjali** and S. Pravin Kumar "Analysis of heart sounds using time-frequency visual representations" Int. Journal. Biomedical Engineering and Technology, Vol. 21, No. 3, 2016: 205-228 (Annexure 1).
- Sathish, **R. Nithya**, N. Roshini, S. Nivethithaa, "Assistive Device for Locomotion of Visually Impaired and Physically Challenged People" , Applied Mechanics and Materials, Vol. 852, pp. 806-811, 2016
- Guhan Seshadri N. P., Muthumeenakshi S., **Geethanjali B**, **Pravin Kumar S**. "Visualization of Brain Connectivity during Emotion induction". Front. Neuroinform Conference Abstract: Neuroinformatics 2016. Pages 276-280 doi:10.3389/conf.fninf.2016.20.00090
- Sriranjani S., **Geethanjali B, Pravin Kumar S**. "Functional Connectivity during working memory task performance". Front. Neuroinform. Conference Abstract: Neuroinformatics 2016. Page: 273 doi: 10.3389/conf.fninf.2016.20.00091
- S. Muthumeenakshi, **B. Geethanjali**, N.P.G. Seshadri, V. Bhavana, and R. Vijayalakshmi "Visualization of Brain Activation during the Performance of Attention-Demanding Tasks " IEEE 15th International Conference on Cognitive Informatics & Cognitive Computing (ICCI*CC 2016), Stanford University, CA.,USA pages 34 -41

BEST FACULTY AWARD

- **Dr. S. Pravin Kumar** was awarded the Best Faculty of the year for the academic year 2015-2016.
- **Dr. R. Sivaramakrishnan** was awarded the Best Faculty Award for the academic year. He also participated in several events conducted as part of the festivities and secured second spot in a game show and Pattimandram.

Others

- **Dr. V. Mahesh** attended a seminar on "Test and Measurement" organized by National Instruments at Radisson Blu, Chennai on 22.07.2016 .
- **Dr. V. Mahesh** Attended "Medicall"-International Medical Expo held at Chennai Trade Centre, Chennai on 23.07.2016
- **Dr. R. Subashini** has been to the Monitoring committee meeting of M.S (By research) scholar Ms. T. Rajarajeshwari on 24.08.2016 at 2 P.M, in the Department of Biotechnology, Rajalakshmi Engineering College

Hospital Visits

An industrial visit to Sri Ramachandra Medical College and Hospital was organized on 10th August 2016 for the third year B.E. Biomedical Engineering students and second year M.E students . This event was coordinated by Dr. V. Mahesh and Dr. A. Kavitha. The main objective was for to enable the students to gain an in-depth knowledge of radiology and imaging equipments, nuclear medicine equipments and nephrology equipments. The students were accompanied by **Ms. D. Kanchana** and **Ms. B. Divya**.
The following departments were visited and equipments studied:

Biochemistry:

- ADVIA Centaur XP
- D-10 – HaemoglobinA1c by BioRAD
- ELISA reader
- Nephelometery
- Auto analyzer

Nephrology:

- Dialyser unit – by Fresnius

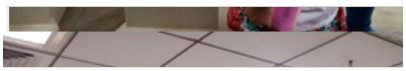
Radiology:

- Mammography – by Fujifilm Amulet Innovality
- Ultrasound scan – LOGICQ P5.
- X-ray – by GE
- CT scan – BRILLIANCE by Phillips
- MRI scans–by GE
- Gamma camera – SymbioEvo Excels by Siemens.

The students found the visit more informative. They could easily relate the visit to what they had studied theoretically. They expressed interested in more visits such as this under various other topics in the future. The students were also extremely thankful to the department and the staff for organizing such a visit.

The students who visited Sri Ramachandra Medical College accompanied by Ms. B.Divya AP/BME and Ms. D. Kanchana AP/BME

Analyzing the Dialysis equipment in depth



In discussion with SRMC Professors

Final Years : Hospital Training:

The students of final year under went a week long training session at reputed hospitals in Chennai. At the end of the training, the students were familiarized with the hospital procedures and were exposed to a realistic hospital setting and the role of biomedical engineers there.

Name of the Hospital	Students Trained
Global Hospital	AathiraHaridas, Keerthana.M, Monica.A
Apollo Hospital,Greams Road	R.Abirami, N.Megala, S.Thamizhamuthan
Billroth Hospital	Y.Ahila, Bhavadharini, Narthana
SRM Institute of Medical Sciences, Vadapalani	AtulTaneja, B.Tanushree Devi, S.B.Vishal
Sooriya Hospital, Vadapalani	R.Chandramouli, Krishna Bairavi, Vaibhav.M
Madras Medical Mission	Chitra.R, Sushmitha.S
Vijaya Hospital, Vadapalani	Deepika.R, Lavanya Krishna, Sanjhanaa Bhatt
ACS Medical College and Hospital	Dixit.K.B, Sakthivel.S, Suryaprakash.D
Apollo Hospital, Teynampet	D.Ganesh, R.Gopichandran, Madhumitra.S.K
Apollo First Med, Kilpauk	S.Gunapriya, Ranjitha.A, R.Revathy
Apollo First Med, Kilpauk	M.Ilakkiya, M.Sakthisree Devi, G.Tamizharasi
Kauvery Hospital	Keerthanapriya.S, Lekha.R, Ritu.V
Global Hospital	M.Kiruthiga, Nivethithaa.S, Roshini.S
Ramachandra Hospital	Krishnapriya.A, Ranjitha.G, Thariga.S
Vijaya Healthcare	R.Krriti, S.Madhuvanthi, RosheemaBala
Apollo Hospital, Nungambakkam	Lingeswari.R., Pavithra.S, Prasanna Kumar
Apollo Hospital,Teynampet	MentaTanurya, Mohamed Ajmal, Nova Belle
Stanley GH	Nithya.K, Shanthini.M, Varshini.V
Apollo First Med,Kilpauk	Prathyusha.R, Vismaya.M
Ramachandra Hospital	B.Ramya, T.Sathiyapriya, K.Sunanda
Madras Medical Mission	Vaishnavi.G, Vinisha.V
ACS Medical College and Hospital	S.R.Mano, S.Praveen Kumar

PLACEMENT NEWS

Let us take this moment to congratulate the following students for getting placed in the campus placement drive.

WIPRO
Applying Thought

Aathira Haridas
Bhavatharini. S
Keerthana. M
Monica. A
Ritu. V
Surya Prakash. D
Vinisha. V

Infosys
POWERED BY INTELLECT DRIVEN BY VALUES

Aathira Haridas
Abirami. R
Ganesh Kumar. D
Gopi Chandran. R
Krriti. R
Madhuvanthi. S
Mohamed Ajmal. R
Monica. A
Nova Belle P.N.

accenture
High performance. Delivered.

Aathira Haridas
Abirami. R
Bhavatharini. S
Chitra. R
Dixit. K.B
Keerthana. M
Krishna Priya. S
Krishna Bairavi
Lekha. R
Madhumithra. S.K
Megala. N
Menta Tanurya
Monica. A
Nivethithaa. S
Nova Belle P.N
Pavithra. S
Ramya. B
Ranjitha. A
Ranjitha. G
Ritu. V
Roshini. N
Surya Prakah. D
Vinisha. V
Vaishnavi. G

Cognizant

Aathira Haridas
Bhavatharini. S
Ganesh Kumar. D
Gopi Chandran. R
Keerthana. M
Krishna Bairavi
Madhuvanthi. S
Megala. N
MentaTanurya
Monica. A
Narthana. V
Ranjitha. G
Vinisha. V

LatentView
Actionable Insights • Accurate Decisions

Analyst:
Tanushree Devi. B

ZIFO
RnD SOLUTIONS

Trainee Analyst :
Kiruthiga. M B

freshdesk

Business Development Executive Role :
Deepika. R
Rosheema Bala

ZoomRx

Business Associate Role :
Prathyusha Ravichander
M. Vismaya

Mu Sigma
DO THE MATH

Data Scientist:
Atul Taneja

WORKSHOPS

Workshop On Cardio Thoracic Equipment

TITLE : Workshop On Cardio Thoracic Equipment
BY : Bio-vision Medical Systems
DATE : 4th August 2016
VENUE : Seminar Hall, Department of Biomedical Engineering, SSNCE
TARGET AUDIENCE: UG Students of Biomedical Engineering

The workshop on cardio thoracic equipment was conducted by Mr.K.Venkatraman and Mr.Zakhir Hussain of Bio-vision medical systems.

The goal of this workshop was to increase the students' knowledge about the applications of the equipments such as:

- Heart Lung Machine
- Haemotherm
- Intra Aortic Balloon Pump (IABP)

Hands on AR VR Workshop

TITLE : Hands on workshop on AR and VR
BY : Metarvrse Technologies
DATE : 10th September 2016
VENUE : Department of Biomedical Engineering, SSNCE
TARGET AUDIENCE: UG Students of Biomedical Engineering from various colleges

SSN's IEEE Engineering in Medicine and Biology conducted 'AR-VR workshop' as a part of the two day technical fest 'Invente' on September 10, 2016 at the PG lab, department of Biomedical Engineering. Around 20 teams from various colleges participated in this workshop.

This workshop was conducted by Mr.Thirukumaran Saravanan, Co-founder and CEO of Metarvrse Technologies.

The event was organized by students of the fourth year from the Bio Medical Engineering department Mr. Atul Taneja, Mr. Vishal S.B, Ms. Keerthana.M of fourth year B.E, Biomedical Engineering

Hands On Workshop On PIC Microcontroller

TITLE : Hands on workshop on PIC Microcontroller
BY : Galwin Technology
DATE : 1st and 2nd September 2016
VENUE : Seminar Hall, Department of Biomedical Engineering, SSNCE.
TARGET AUDIENCE: UG Students of Biomedical Engineering

Around 60 students attended the workshop. In the 2-day workshop both theoretical and practical aspects of the microcontroller were dealt with, with more focus being given to the latter. On the theoretical side, the architecture of the peripheral interface controller (PIC), pin details, port configuration, usage and applications were discussed. Practical aspects were discussed in a hands-on manner. Students were given problems to solve. The programs were written in embedded C and were tested first using a simulation software and then realised on a hardware board. Problem sets started from basic single input single output concepts, and were followed by multiple inputs multiple outputs and culminated in more advanced ones of number and word display on LCD screens. The students found the workshop interesting and challenging. It helped to reinforce microcontroller concepts that were already a part of the syllabus, while introducing a broader spectrum of real time applications for the same.

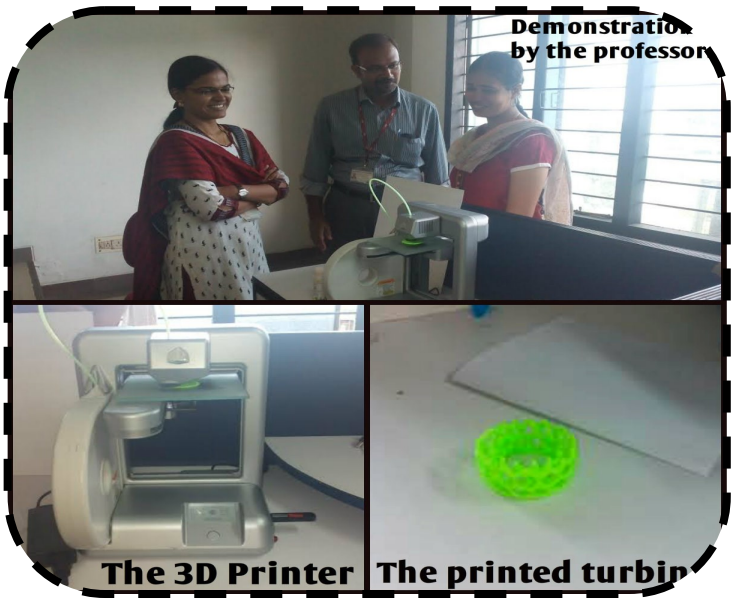
The participants from the PIC Workshop

The PIC Microcontroller kits used during the workshop

3D Printing Workshop

TITLE : Workshop On 3D Printing
DATE : 27th July 2016
VENUE : Diagnostic and Therapeutic Equipment Lab
TARGET AUDIENCE: ME Manufacturing Engineering Students

Demonstration on cube 3D printer was given to the ME Manufacturing Engineering Students at Medical software lab. Dr. K.S Vijaysekar, Asso.Prof/Mech accompanied the students and had discussion with Ms R. Nithya, Asst.Prof/BME and Ms. D. Kanchana, Asst.Prof/BME about the history and Extended applications of 3D printing. During the Demonstration Session a Miniaturized Turbine was printed on 27.07.2016. The Biomedical engineering department now boasts of its own in house 3D printing station for practical research needs. The workshop was aimed at enabling students to efficiently use this facility to further their research projects. The session was overseen by Dr. K. S. Vijaysekar from the mechanical engineering department. The history and applications of 3D printing were discussed in detail and the Master students of Manufacturing Engineering were all praise for the informative session.



SSN IEC - BioEthics Seminar

In association with ISTE and IEEE student branch

TITLE : Bioethics

BY : Dr. Paul Kumaran, Scientist E, National Institute for Research in Tuberculosis (ICMR), Madurai, Tamil Nadu, India.

DATE : 17th September 2016

VENUE : Seminar Hall, Department of Biomedical Engineering, SSNCE

TARGET AUDIENCE: UG students – Biomedical Engineering, PG students – Medical Electronics, Faculty from various departments.

SESSION DETAILS:

The following topics were discussed in the seminar :

- Definition of Ethics, Categorization of Biomedical ethics.
- History of Ethics.
- Belmont report.
- The integrated definition of Ethics, Principles – Guidelines – Regulations.
- Brief explanation of Basic principles involved in ethics with detailed examples
- Beneficence and Non-Maleficence
- Autonomy
- Justice
- Definition and types of Public health ethics.
- Introduction to Research, Types, Clinical trials, Responsible people.
- Good Clinical Practice (GCP) – Definition, Introduction, Indian standards, Formulation of laws and acts to ensure GCP, List of Rules involved in GCP.
- Detailed explanation of steps in clinical investigations.
- Major Concerns in ethics.
- Process to be followed in Bioethics, Protocol – Scientific review – Ethical review – Benefits to over weigh risk.
- Principal Investigator – Definition, Introduction, Responsibilities.

Dr. Salivahanan, Principal, SSNCE welcoming Dr. Paul Kumaran with a bouquet
Dr. Rama Prabha, IEEE Student-in-charge, Dr. A. Kavitha, HOD, BioMedical Engineering, SSNCE

The enraptured audience

Inaugural Ceremony for Association of Biomedical Engineers

The Annual Inauguration of The Association of Biomedical Engineers for the year 2016 was held on the 29th of August in a grand manner.

The chief guest **Ms.Subashree Rajan,** Marketing Manager at Phoenix Medical Systems, Chennai, graced the occasion with her presence. The dignitaries **Dr.A.Kavitha**, the head of the department, and the student coordinator **Mrs. M.Dhanalakshmi** added glory to the function by their presence.

Ms. Subashree Rajan addressing the audience

The student coordinator Mrs. M. Dhanalakshmi along with Ms. D. Kanchana welcomed the chief guest with a bouquet. The Head of the Department, Dr.A.Kavitha addressed the gathering and welcomed the chief guest.

Alumni Connect:

Mr. Saravana Prakash, an alumnus from the 2015-2016 batch of B.E Biomedical Engineering started his stint as a Post Graduate Scholar in Nanoelectronic systems in Technical University, Dresden. In a mail to the department faculty he expressed keen interest in helping out students looking to pursue their higher studies in Germany. We wish him the best of luck for his future endeavours.

Mr. Saravana Prakash (right extreme)

Students who are focused in similar domains of specialization and interested in pursuing higher studies in Germany can contact the editors for more details

STUDENT ACTIVITIES

Sports Activities

Mr. K.B.Dixit, (4th year BME) finished as runner up in SSN Cricket Tournament from 22-25th August,2016. Je also finished second in the Anna University zonals Cricket tournament from 22-26th September.

Mr. Srivathsan (3rd year BME) won the first prize in the All India National Level tournament held at MIT, Pune (BasketBall). He also won first prize in Zonals (BasketBall)

The triumphant teams

Teach A School

With the aim of taking entrepreneurship to the schools and kindling the entrepreneurial spirit in young kids, Lakshya's Teach A School venture is a huge family of around 200 student volunteers and organizers who work with dedication and commitment in achieving its goal. Teach A School focuses on inculcating basic English, Math and Entrepreneurial skills through interactive activities to kids from Government Schools in and around the city.

Working with a structured syllabus and periodic sessions, the venture has succeeded in covering more than 5 Government schools around Chennai. The next aim is to increase the volunteer base and expand to schools from outside the city as well.

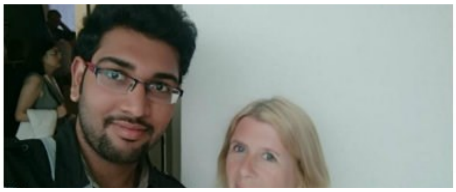
Ms. Deepika Raman from 4th year of BME is one of the Organizers for this initiative and **Ms. Sanjhanaa R. Bhatt** from BME 4th year is an active volunteer.

Session on English communication at the Kelambakkam Government High School

SUMMER SCHOOL & CONFERENCE

Name of the Participant : Kapardi M. (2nd year M.E)
Conference : Sixth International Conference On Memory
Date : 17th- 22th July, 2016
Venue : ELTE, Budapest, Hungary
Title of Paper : 1) A neuronal model for episodic and re-consolidation memory
2) Assessment of brain connectivity patterns in progression of Alzheimer's disease.
Authors : Dr A.Kavitha, Bhuvaneshwari.B, Kapardi M
Summer School : Spatiotemporal Modeling And Modeling Of Biological Systems.
Venue : Max Planck Institute of Molecular Cell biology and Genetics, Dresden , Germany
Date : 23.07.16 - 31.07.2016

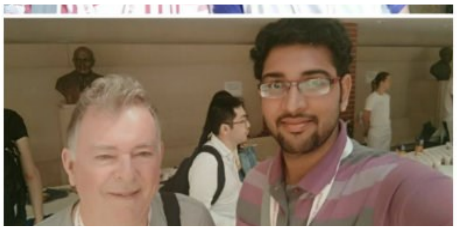
With Micheal J Kahana , University Of Pennsylvania, U.S.A



With Katinka Dijkstra , EGS3H, Netherlands

Kapardi presenting his views at the conference

With Carol. A .Barnes, A.S.U ,U.S.A



With Martin A Conway, City University London

SSN Incubation and Innovation Centres

The SSN Incubation Centre and the SSN Innovation Centre were launched on September 03, 2016, here at the campus in Chennai. Prof Dr. V.G. Idichandy, formerly Deputy Director, IIT Madras has been appointed as the Chief Mentor for the two centres. Mr. Shiv Nadar, Founder and Chairman of Shiv Nadar Foundation was present on the occasion to inaugurate the centres.

The following projects were displayed by the students of the Bio Medical Engineering department at the launch of the incubation centre and received immense praise and prospects.

Highlights of the Event

Honourable Founder Dr Shiv Nadar inaugurating the SSN Incubation and Innovation Centres along with other Dignitaries. His speech in this session motivated many budding entrepreneurs. If you would like to explore these centers and listen to his entrapping speech to kindle your entrepreneurship passion, check the link given : https:// www.youtube.com/watch?v=bE4AhOyTvFA

II Year BME students presenting their project prototype titled "Design and development of Mobility aid for physically challenged" to our honorable Founder

Meghna, II Year BME **elucidated the working of their project prototype .**

The following projects were displayed by the students of the Bio Medical Engineering department at the launch of the incubation centre and received immense praise and prospects

S. No	Name of the project	Name of the Guide	Name of the Students
1	Design and development of Mobility aid for physically challenged	Ms. Nithya	Ms. Meghna & team
2	Staircase climbing wheelchair	Ms. Nithya	Ms. Roshini
3	Low cost dialysis Machine	Dr. V. Mahesh	Mr. Vaibhav & team
4	Design and development of orthotic exoskeleton	Ms. Nithya	Ms. Vaishalini

INVENTE 2k16 - SSN Tech Fest

After months of arduous and meticulous work by the students and faculty members of Sri Siva Subramaniya Nadar College of Engineering, Invente V 1.0 saw its debut on 9th of September 2016.This two day technical fest kick started with its inaugural graced by the presence of our honorable Chief guest for the day, Professor M S Ananth, Former Director of IIT- Madras, Dr. S. Salivahanan, Principal SSNCE, Ms.Kala Vijayakumar, President of SSN Institutions and other dignitaries. The Tech Fest magazine, "TechVibe" was released during this event. The Chief Guest was presented with a bouquet by Aathira, Student President of Biomedical engineering department, as a token of gratitude.

The gathering was addressed by Dr.S.Salivahanan who explicated about the accomplishments of SSN institutions and expedition of Invente. Ms.Kala Vijayakumar introduced the respectable Chief Guest Prof. M S Ananth. The Chief Guest Professor M S Ananth inspired the assembly with his words of wisdom about creativity and technological advancements in educational institutions.

The set of 64 events were conducted by eight departments and a group of ten events were lead by Biomedical department under the banner of Medimorphosis. Each of the eight technical events, two non technical events and a workshop delineated its own individuality and exquisiteness.

The team that made it all happen—Respected President, Principal, Chief Guest, Tech fest Event Coordinators, HoDs & the Association Student Presidents of the 8 Departments

INVENTE 2k16 - Medimorphosis

Bioquest, biotech and biomedical based entrepreneurship idea pitching platform, saw 30-40 teams participating enthusiastically.Biogonise,a quiz based on visual clues, was too well received among the participants. Almost 27 teams contested for an organic board game powered by the excitement of a quiz, Ludaquiz. It was Scintilligence, where over 40 teams were tested on their technical knowledge and entertained with fun brain games. An artistic and colorful event, Masterpiece, witnessed 27 teams of ebullient contestants. Logozane was an engaging event for 26 teams of participants who were asked to design their own logo for a given situation. Tellurians, an amusing biomedical puzzle event based on visual clues and Dumb Charades received 50 ardent teams. Each team from distinct discipline of biomedical sciences presented their poster during the poster presentation event, Papyrus. Shortlisted candidates from 8 teams attended the paper presentation event with their informative thesis and research papers. Hands on Virtual and Augmented Reality workshop organized by Metarvrse Technologies had 16 avid teams of participants. Apart from these brainstorming events, Kick off enthralled 126 football freaks with it's amusing box football game.

All the winners were awarded with the prize money and all the participants were presented with participation certificate. With its hearty welcome to all tech savvy engineers, Invente V1.0 hosted 20,000 avid contenders. On its supernova success, Invente will abide to be a forerunner to the upcoming tech fests.

The list of office bearers for association of biomedical engineers is as follows:

Aathira Haridas-President

Gopichandran –Vice President

Sathyiapriya-Secretary

Prathyusha –Treasurer

The organizing team that made Medimorphosis a reality

Internships and Other

- **Mr. D.Balaraman, Mr. V.Nandhakumar, Mr. T.Pragadeesh** and **Ms. T.Varshini** (third year BME) attended a 3 day Entrepreneurship Awareness Camp sponsored by entrepreneurship development institute of India, organized by SSN incubation Centre on 19-21, September, 2016.
- **Ms. S.Abhinaya and Ms. N.Divya Raghavi** (third year BME) interned at Apollo Hospitals, Teynampet during June, 2016.
- **Ms. M.Nagavarshini** interned at ACS Medical College and Hospital during June, 2016.
- **Ms. S.Gayathri Devi, Ms. AnuradhaLakshmanan, Ms. S.Deepika** and Ms. **M.Abhinaya** interned at Kauvery Hospitals, Chennai during June 2016.
- **Ms. S.Gayathri** (third year BME) interned at Apollo Hospitals, Chennai during june,2016

Class Activity: Open book test

An open book test was conducted for the students of 4th year. The test was based on topics of Medical Optics and was organized by **Ms Delpha AP/BME**.

The test was conducted on the 25th of August in the 4th year classroom. The activity was aimed towards encouraging the students to refer textbooks and apply their knowledge to the timed quiz conducted during the first two hours.

Students found the activity interesting and learnt a lot during the session.

The final year students of BME taking the test

32 Hour Startup Challenge

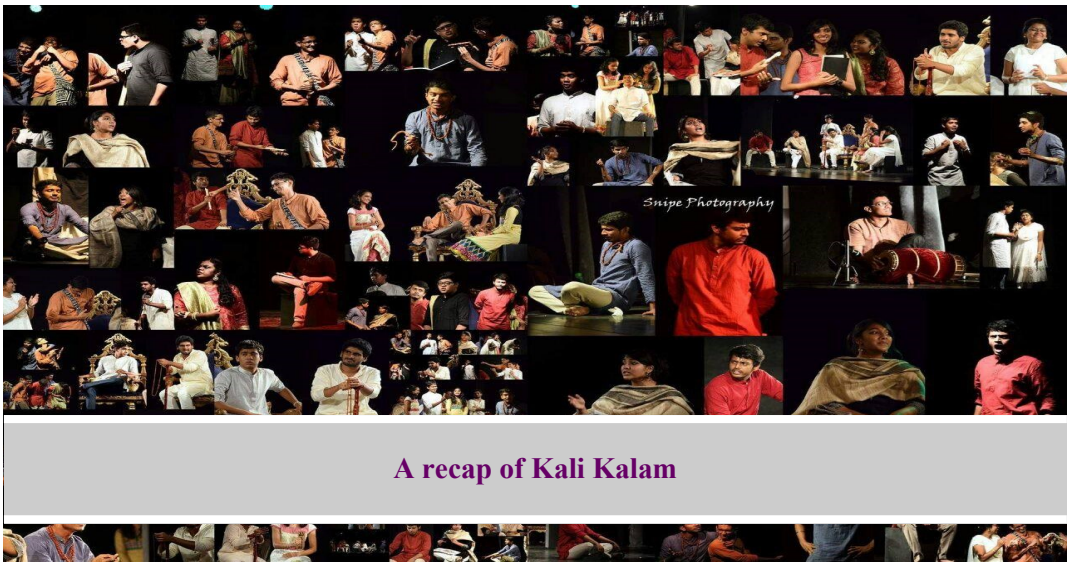
Ms. Deepika Raman from BME, 4th Year was part of the core team from SSN's EDC, Lakshya who helped organize this event.

As it dawned on Saturday, August 13th, participants of the 32 Hour Startup Challenge bid farewell to the comforts of their bed for the rest of the weekend, not imagining the exciting ride that was in store for them. The 32 Hour Startup Challenge, in the lines of startup weekends that are staged across the world, was organized by SSN College of Engineering's Entrepreneurship Development Cell, SSN Lakshya at the SSN Campus over the first weekend of August. The event saw participation from a few colleges across the city apart from an amazing response from the host college. The event was structured to take the participating teams, consisting of a developer, a front-end designer and a business strategist, on a 32 hour ride packed with all the things they would do to get their nascent startup idea on the floor as a tangible product in the form a mobile/web application, SaaS (Software as a Service) or an electronic prototype, right from pitching and prototyping to creating a business model and marketing. With accomplished mentors like Mr. Dorai Thodla from builskills.org, Jim Tharakan from Headstart and several others, the event was a grand success. Prizes worth 10k were given away in 4 different categories to deserving participants.

The mentors, organizers and participants of the 32 Hour Start-up Challenge

Campus Theatre Initiative

The drama was directed by fourth years, **Ms. Lavanya Krishna** (of BME, IV Year) and Kathiknathan S and scripted by Ganapathi Ramanathan from second year. The theater club of SSN, Lights Out Please in association with Crea Shakthi, staged a play on the 11th September 2016 at Harishree Vidyalayam Auditorium. The play was titled 'Kali Kalam' and was a satire on the discussion between the Indian gods deciding as to whether the world should be ended or not. The character sketches were made relatable with each god having their own idiosyncrasies reflecting the different mindsets prevalent among humans. The show was curated entirely by the students from the 2nd, 3rd and 4th year across the various departments. With two house full shows and wonderful reviews about the actors' performances, Kali Kalam was a great hit, and another success story to LOP's name!



A recap of Kali Kalam

SSN MUN

Mr. Nikhil Bala from the 3rd Year at BME was part of the organizing committee for the same.

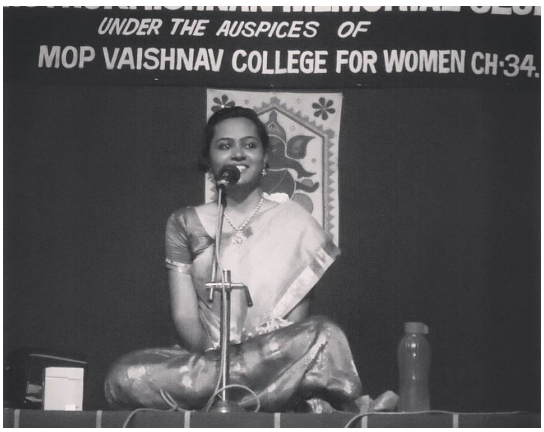
300+ delegates distributed over six unions attended the SSN MUN that was held between The Executive Board and International Press members, who arrived from all over the nation and acted as the catalyst for the amazing debate this conference witnessed.

Detailed Reports on :
http://ssnmunip.weebly.com/

Cultural Activities

- A team from SSN's theatre group, Lights Out Please, participated in a competition held by Madras Christian College, named Dionysia'16. The play was based on popular author Rohal Dahl's 'Lamb to the Slaughter', and was adapted by Sreenivas V and Mira M; two scriptwriters from LOP. Umesh L, Sundaraman V, George Cherian and Vismaya M comprised of the cast and the crew consisted of students from the second year, including Saishruti R (BME). Under the direction of Ms. **Yamini Nandakumar and Ms. Vismaya M (BME),** the team was placed third in the event, and Vismaya M was declared **best actor** for her portrayal of the character Mary Maloney.
- **Ms. S.Gayathri** performed Vocal Carnatic music at MOP Vaishnava College on August,7 and in AIR on September,27.
- **Ms, Sahana.V** participated in Carnatic Solo Vocal at Festember, 2016.
- **Ms. Anjana. K. Rand** her team participated in the discipline tennis and secured runners up. She also won a cash prize of Rs.4,000.
- **Mr. Aniruddh Balaji.R** secured a third prize in lawn tennis and was awarded a cash prize of Rs.2,500 for the same

LOP at MCC



S. Gayathri at MOP

ACCIDENTAL DISCOVERIES

As Plato said, "science is nothing but perception," and this accidental act of discovery embodies the sentiment. Of course, it helps to be a leading scientist in the field—devoting your life to the pursuit of one cure, invention, or innovation—but a little luck goes a long way, too

Karl Paul link blood thinner

The field of biomedical has always been thought of to be a noble one; helping patients with instrumentation sounds as humanitarian as it can possibly get, right? Well, here's an ironic twist to an accidental discovery in this field. The discovery of blood thinner.

In 1933 a distraught farmer panicking a the violent haemorrhaging of his cows seemed the help of link, a biochemist. The farmer, ed Carlson believed that the hay he was feeding the cattle was the culprit and was quickly proved right by the scientific experiments carried out my link. The sweet clover hay fed to the cows was rancid and had an anticoagulant that resulted in the cattle's condition. This substance was named warfarin and was initially sold as a popular rat poison.

Upon further experimentation however, link identified and isolated a compound from warfarin that till date is used as a blood thinner to cure patients with blood clots.

Age Reversal

Every human body, upon manufacture comes with its preset expiration date. Well of course, this date is subject to change for different living conditions, but on an average, the longest a man may live up to is 70 years.

It is a well-known fact that as the body ages, the cells and organs present within do so too. The reasons for this are aplenty and open to further research. Assuming there is no black magic involved, can this process of aging be reversed? To this one may reply, “Of course not!”

What if I told you, that this process of age reversal is actually possible? What if I told you, that age reversal was possible without the need to use ‘Olay 7 ages of signing’? What if I told you, that this process once deemed impossible is no longer a myth? You wouldn’t believe me, would you? Well I didn’t either, until I heard of and watched Dr. Tony Wyss-Coray, explain the science and details of this procedure.
A professor from Stanford University, Dr. Tony Wyss-Coray explained at a recent TED Talks session, the research that was being perused at their lab to reverse aging was by using young blood.

To explain the technicalities involved in this procedure, it would be best to start off at the roots, the very basics. The human body at younger ages, show quicker signs of recovery and better health due to the spellbinding ability of its cells to proliferate and rejuvenate. As years pass by however, the proliferation ability of all cells decelerate leading to their irreversible death. Blood cells too face a similar fate if not the same. Deposition of fat cells in the marrow is a trademark of aging leading to a suppressed production of blood cells when in demand. Thus, blood desiccates as people grow. This science holds true not only to humans but to mice as well.

The scientists at Stanford thus set out to find any possible cure to this natural process. The experiment was carried out on 2 mice of human equivalent age of 65 years. One mouse was injected with young blood from a mouse of human equivalent age of 20 years while the other, left as is. The mice were trained to navigate through a 'Barns maze' to their hole of comfort.

The 'Barns maze' consisted of numerous holes on a circular stage with only one hole connected to a tube leading to the mouse hole, into which the mice could scurry. The stage was irradiated with bright lights in an attempt to repel the mice from the stage and into their hole.

It was observed that both mice though trained the same way, showed different levels of thinking and implementation. The mouse that had been injected with young blood, navigated its path almost perfectly to its hole, while the other mouse was unable to do so. The researchers also learnt from further studies that the revitalizing factors were preserved in the plasma of the blood. This interpretation was paralleled to that of stem cell research, thus confirming its validity.

It does seem quite entrancing, doesn't it? Rather than using those million odd anti-aging creams, just a single, simple procedure of blood transfusion, and Voila! We're good to go! Our second life, if you may like.

On a more clinical note, this type of procedure may help cure the aged with brain diseases such as Alzheimer's and the like. While the trial is still under further research, a breakthrough in this field may open up various sanguine diagnostic and therapeutic procedures for diseases related to aging that were once held in disbelief. Do you still consider age reversal a utopian vision?!

-Lavanya Krishna

IV Year

BME

The medical equipment feature of the Newsletter hopes to draw awareness about the history and development of relevant and integral equipments used in diagnosis and therapy.

Surgical Diathermy

Dia-thermy, is derived from the Greek words dia meaning through and thermo meaning heat. It literally refers to the heat induced cutting process. Diathermy has been in practice since the twentieth century. Surgical diathermy is used in order to cut tissues by the application of localized heat with the help of very high frequency alternating current. It is very essential that these currents must have a very high frequency so that they do not cause neural or muscle stimulation. Hence surgical diathermy equipments usually operate in the radio frequency range, 100Khz-5Mhz. Surgical diathermy is usually used to perform blood less surgery. The tissue can be cut and the blood vessels can be made to coagulate. This has important applications in neurosurgery and in eye surgeries. Also they are used to make incisions for laparoscopic procedures. There are two different types of electro surgery, mono polar and bipolar. In mono polar mode, we make use of a single electrode to cut the tissue. The tissue is placed on a return electrode which will return back the high frequency current back to the machine. The electrode maybe of various types, it may have an angular tip, a circular tip or a needle like tip. In bipolar mode, we make use of a forceps like electrode which will be used to cut the tissue.

There are two main effects of surgical diathermy, one is cutting and the other is coagulation. The cutting waveform is a simple alternating sine waveform whereas in a coagulation waveform, the sine wave is turned on and off in a sequence. The waveforms may also be pure or blended. a pure waveform will continuously give either a cut waveform or a coagulation waveform, whereas a blended waveform will alternatively produce cutting and coagulation waveforms. During the cutting process, the tissue heats up because of the high frequency alternating current and hence gets damaged because of which a cutting is produced. However during coagulation, the power delivered is lesser than that delivered during cutting which will shrink or contract the cell due to protein denaturing and this will facilitate coagulation. Besides the above, effects like fulguration (charring) and desiccation (dehydrating) can also be produced.
Safety is a very important parameter when dealing with surgical diathermy. Proper grounding and proper isolation of the patient must be done. In this procedure, both the doctor and the subject are susceptible to shocks or burns. hence the doctor who is operating must also have good knowledge about the equipment and must wear protective gloves.

Krriti. R
IV Year
BME

The surgical diathermy equipment

SUCCESS STORIES

Dr. Kavitha received the following mail from a student, Mr. **Vinith Johnson** (from Shiv Nadar University) who expressed his gratitude to the department

Dear Ma'am,

Hope this e-mail finds you in the pink of health.
If you may recall , I had volunteered in your lab at SSN not too long ago (Dec 2014- Jan 2015). At that point in time, I had zero experience with cognitive neuroscience or any kind of processing of any biomedical signal.

Thanks to that opportunity, I suddenly got exposed to a fascinating world of neuroscience and I've been thrilled ever since.

I'm writing this e-mail, mainly with an intention of giving you a few updates as to how your department had created such an impact on me and also to convey my sincere gratitude.

After my brief stint at SSN, I further went to on to volunteer at an autism center in Bangalore, did some ground level study on neurodegenerative disorders and also went to on to volunteer at Department of Cognitive Neuroscience ,INMAS, DRDO (Delhi).

While , I was working on my B.Tech thesis titled "The Cognitive Neuroscience of the diseased brain", I also got selected for a visiting scholar program at the Dept. of Neurology at the University of California, San Francisco.

Soon after thesis presentation in April, I left to the US for my three month visiting scholar program. Right after the program (last month), I got hired full-time as a Junior Research Specialist at the centre for Integrated Neurosciences , UCSF. Currently, I'm glad to inform you that I am one of the project leads for an on going investigation here and I'm enjoying work.

You can find more info on our labs and the work we do here: http://www.cin.ucsf.edu

At this point , I'd like to thank you for the opportunity you guys gave me two years ago. It has played a huge in developing my interest towards the subject. I'm sorry I'm writing this e-mail so late, but hey! better late than never!

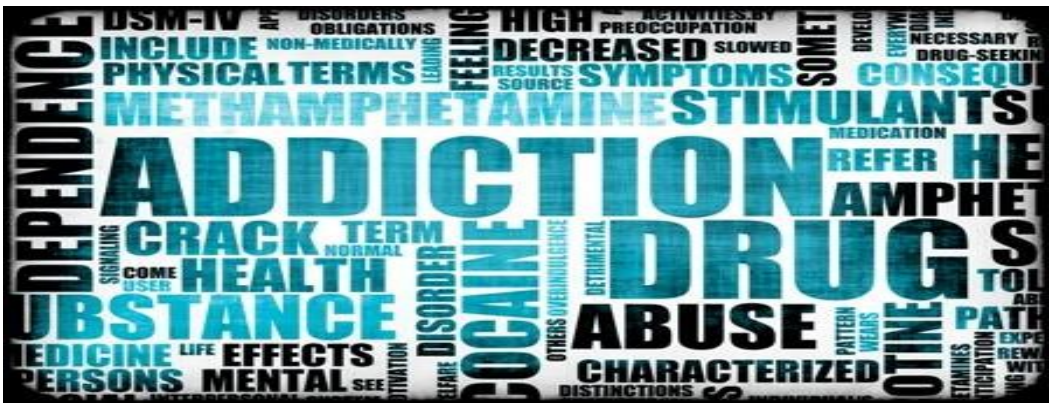
*I'd also like to express my deepest gratitude to **Mrs.B. Geetanjali**, who so patiently explained concepts to me and helped conduct my first study back then. Thank you to the rest of the community at the Biomedical Dept. for offering me all the help during my volunteering tenure.*
Hoping to meet you all soon again!

Thanks,
Vinith Johnson
Dept. of Neurology,
Gazzaley Lab | UCSF

Addiction

Children are the gems of the human community. Children are the future pillars of our society. In our country children must be given the highest priority. Then shouldn't children of our community be protected and taken care of? In this time given to me i would like to talk about why the society needs to focus on children the most. One of the pressing issues which parents are now facing due to the dawn of technology are the child's addiction towards games. Though it looks problem less on the surface, this is a serious issue which has long lasting and deep effects on the child's mind. Chiropractors are now claiming that children have a greater chance of becoming hunchbacks because of excessive use of mobile phones.

The phenomenon called 'text neck' is observed in teenagers who are common users of Facebook and WhatsApp. Not only these, but a whole lot of other ailments which come as a price with uncontrolled usage. Anorexia, which is the Loss of appetite for food, Mental illnesses which persists throughout the lifetime of the child, spinal problems and the list goes on. These are just the primary issues which happen. In order to prevent this addiction, children must not be given phones to play with as a form of relaxation. And phone usage by children must be mandatorily monitored by parents. Children must have their daily dosage of exercise. for this they must play outside. Activities like Swimming, playing with friends in the playground must be encouraged. Addiction will not grow if its nipped off in the bud stage itself. Since children or not emotionally or mentally mature to understand the serious consequences of this, it is the duty of the parents to guide them.



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- Rosheema Bala
  IV Year
  BME

UPCOMING

EVENTS

- IEEE Third International Conference on Bio signals, Images and Instrumentation on March 16-18th 2017, SSNCE
- World Summit on Bioengineering, November 7-8 2016, Las Vegas, USA
- 5th International Conference on Biometrics and Biostatistics, October 20-21, Houston, USA


platelet party!
what's going on here?
platelet party!
why, I haven't had this much fun in years!
platelet party!
I think we're stuck.
platelet party.
no, seriously, we're stuck
platelet party!
theAwkwardYeti.com


TRACHEA! What's up DOG?
hello esophagus.
Dude. Here comes some water, you're up, man.
No thanks, I don't drink.
©2014 The Awkward Yeti
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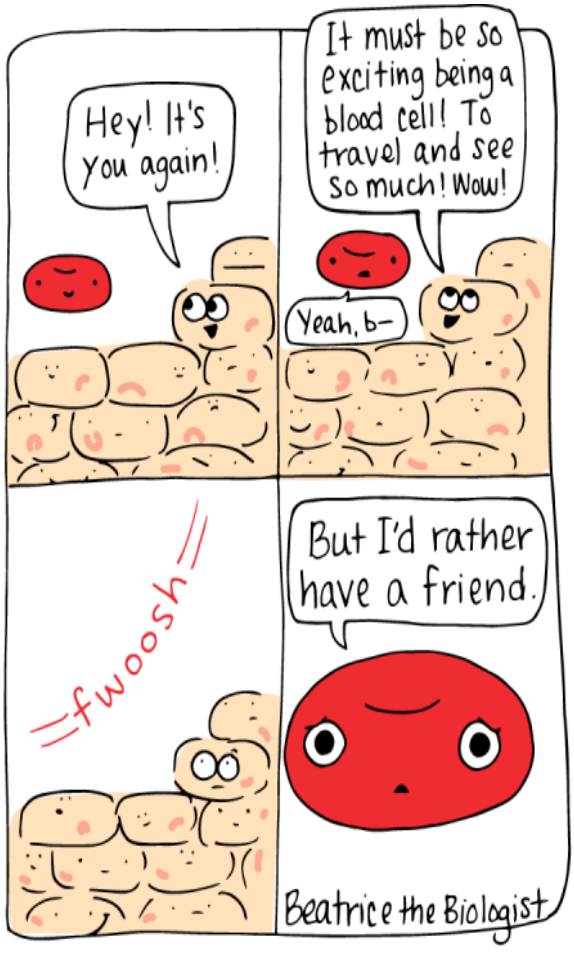
Don't be such a square, guy! Loosen up!
I don't think you understand what I'm saying.
DRINK! DRINK! DRINK!
ACK AH GRGLL
theAwkwardYeti.com

COMIC ZONE


Hey! I'm a bacterium! Who are you?
A virus.
Can you help me make more of me? I can't do it on myown:
Sure!
Thanks! Oh, and this will make you explode, just so you know.
WHAT?! WHY?!
There's got to be a better way to go about this...
NOPE
Beatrice the Biologist


Hey! It's you again!
It must be so exciting being a blood cell! To travel and see so much! Wow!
Yeah, b-
fwoosh
But I'd rather have a friend.
Beatrice the Biologist