VOLUME 6: ISSUE: 2

SMRITI

DEPARTMENT

OF

COMPUTER SCIENCE &

ENGINEERING

SNEAK PEEK

" You don't have to be great to start, but you have to start to be great."

- Zig Ziglar

HOD'S DESK

My heartfelt new year wishes to all of you. It was a hectic and interesting November with a two-week AICTE sponsored FDP on Deep Learning as well as a three-day AICTE sponsored National Seminar on convergence of IoT, Big data and Cloud for Smart Governance. Both programs were well-attended with participants from all over India. I appreciate all the faculty members who were involved in both the programs for their hard work in making the sessions enjoyable and fruitful for all the participants.

This time, three faculty projects and 19 student projects have been approved for internal funding from our management. I congratulate all of them and urge them to make good use of this funding to pursue effective research and obtain results that are publishable as well as patentable. I also appreciate Mirnalinee and Shahul for filing a patent for their research work through the institute.

I am very glad to see that the students have taken the necessary steps to initiate the ACM-W student chapter. I wish the chapter all the very best and I hope to see a lot of interesting activities getting organized that are focused on women students.

Prof. Anand Sivasubramaniam and Prof. Chita Das from Penn State University visited our department and talked about the possibilities of student internships and research collaborations. It was very positive and we hope to follow it up with some concrete actionable benefits.

I feel very happy to see our alumni doing very well in prestigious companies. It is also very nice to see our students getting covetable internships and gaining valuable hands-on experience. It was a little disappointing to note that our college has slipped down to AA from the AAA rating that it had last year based on its performance in NPTEL MOOCs. I strongly encourage all the students to supplement their curricular learning by getting enrolled in suitable NPTEL MOOCs and sustaining religiously till the end to receive valuable certification.

With all your efforts, I am sure we will bounce back to AAA next time.

Dr. Chitra Babu
HoD/CSE

The challenge of the unknown future is so much more exciting than the stories of the accomplished past.

-Simon Sinek

FACULTY PUBLICATIONS & PAPER PRESENTATIONS

1. **Dr. A.Chamundeswari, Sriraghav K, Baskaran** K presented a paper titled, "Global Software Development: A design framework to measure the risk of the global practitioners", in ACM ICCCT, held at MNNIT, Allahabad.
2. **Dr. P. Mirunalini** attended and presented a paper titled, "Tracking of objects in occluded and Non-occluded environment using shift and Kalman filter", in IEEE TENCON 2017, Penang, Malaysia, 5 - 8, November 2017.
3. **Dr.D. Thenmozhi, Mr.Kawshik Kannan, Dr.Chandrabose Aravindan**, "SSN_NLP@ INLI-FIRE-2017: A Neural Network Approach to Indian Native Language Identification", in Procs. of The International conference on Forum of Information Retrieval Evaluation (FIRE 2017), In CEUR proceedings, Vol. 2036, pages:113-114, 2018.
4. **Dr. D. Thenmozhi, Mr.Kawshik Kannan, Dr. Chandrabose Aravindan**, "A Text Similarity Approach for Precedence Retrieval from Legal Documents", in Procs. of The International conference on Forum of Information Retrieval Evaluation (FIRE 2017), In CEUR proceedings, Vol. 2036, pages:90-91, 2018.
5. **Ms.Revathy, Ms.Suganyadevi, Ms.Supriyaa, Ms.Priyadharsini.R, Ms.Manisha.S**, " Automatic and Efficient Cleansing of Illustration Images in Web", Journal of Image Processing and Artificial Intelligence, Vol 3.Issue 3 Pg no 1-7,November 2017.
6. **Dr.B. Bharathi, Mr. M. Anirudh, Dr.J.Bhuvana**, "Bharathi SSN @ INLI-FIRE-2017:SVM based approach for Indian Native Language Identification", International conference on Forum of Information Retrieval Evaluation (FIRE 2017), In CEUR proceedings, Vol. 2036, pages:110-112, 2018.

FACULTY ACTIVITIES

1. **Dr.S.Saraswathi, Asso.Prof./CSE** published a book along with Dr.C.Emilin Shyni titled "Cyber Forensics", Published by Charulatha Publications.
2. **Dr.S.Saraswathi, Asso.Prof./CSE,** attended a Doctoral committee meeting at Department of ECE, SSNCE.
3. **Dr. T. T. Mirnalinee, Prof./CSE,** evaluated a PhD thesis titled, " Improved Optimization algorithms for numerical function optimization and their application to data clustering".
4. **Dr. D. Thenmozhi,Asso.Prof./CSE,** attended a Doctoral Committee meeting at Kongu Engineering College, Erode.

WORKSHOPS ATTENDED

1. **Dr. B. Prabavathy,Asso.Prof./CSE**, **Dr. K. Vallidevi,Asso.Prof./CSE** and **Dr. B. Bharathi, Asso.Prof./CSE,** had attended AICTE sponsored Two Weeks Faculty Development Programme on Deep Learning for Image and Text Analysis: Principles, Techniques and Challenges which is conducted by Department of CSE @ SSN College of Engineering.
2. **Dr.D.V.V.Prasad, Prof./CSE, Mr.K.R.Sarath Chandran, AP/CSE, Ms.S.Lakshmi Priya, AP/CSE and Ms.Y.V.Lokeswari**, **AP/CSE,** had attended the AICTE sponsored National Seminar on Convergence of IoT, Big Data Analytics and Cloud Computing for Smart Governance organized by Department of CSE at SSN College of Engineering.

ACM – WOMEN (W) CHENNAI PROFESSIONAL CHAPTER

Dr. Madheswari Kanmani, AP/CSE, has been elected as the Treasurer of the Chennai ACM – W Professional Chapter. The Department of CSE has started the ACM-W student chapter with **R.N.Kirtana** and **Sudha Parimala** of III year as office bearers.

PAPER REVIEWS

1. **Dr.A.Chamundeswari, Prof./CSE**, reviewed the first version of the book titled "Software Engineering Essentialized", authored by Ivar Jacobson, Harold ”Bud” Lawson, Pan-Wei Ng, Paul E. McMahon, Michael Goedicke, Ian Spence.
2. **Dr.Shomona GJ, Asso.Prof./CSE**, reviewed a research paper titled " Neighborhood Vector Relational Coefficient for Multimodal Biometric Secured Social Network Communication" on invitation from Plos One (IF:3.057).
3. **Dr. T. T. Mirnalinee, Prof./CSE**, reviewed two research articles titled
   1. Machine Learning Based Approaches for Natural Language Processing.
   2. An enhanced features extraction Naïve Bayes technique for identification of spam in SMS, for The International Conference, Towards Extensible and Adaptable Methods in Computing – TEAMC 2018, Netaji Subhas Institute of Technology (NSIT), New Delhi.

   She also reviewed a paper titled “Caliber fuzzy c-means algorithm applied for retinal blood vessel detection" for Int. J. of Computer Aided Engineering and Technology.

4. **Dr. D. Thenmozhi,Asso.Prof./CSE**, reviewed a paper titled "Implementation Of One Time Password By 3*3 Vedic Multiplier" for IEEE International Conference on Computer, Communication, and Signal Processing (ICCCSP 2018).
5. **Dr. K. Vallidevi, Asso.Prof./CSE,** reviewed two research articles titled:

   1. Empirical Validation of OO metrics and machine learning algorithms for software change proneness prediction

   2.Agile For Innovation: Opportunities and Challenges, for The International Conference, Towards Extensible and Adaptable Methods in Computing – TEAMC 2018, Netaji Subhas Institute of Technology (NSIT), New Delhi.

INDUSTRY – INSTITUTE INTERACTION

Ms. R.Priyadharsini, AP/CSE and **Avinash Bharat**, IV year visited **Aspec Scire India Pvt Ltd**, Bangalore on 8/12/17 for a project discussion as part of industry institute collaboration. The meeting started with the presentation by SSN team on the work done for the past 9 months. The team gave elaborate details on the identified feature extraction algorithms, feature matching algorithms, tie point generation algorithm and sparse cloud generation. Suggestions and further improvements to the existing model were discussed.

EXTERNAL INTERACTION

1. **Dr. Chitra Babu** attended the brainstorming meeting session chaired by Dr. B.V. Babu regarding the Institution of Eminence(IoE) application along with all other HoDs, Principal, Director SoM and the President.
2. **Dr. Chitra Babu** attended the text book writing workshop that was organized for the state board higher secondary computer science course, at SCERT conference hall.
3. **Dr. Chitra Babu** attended the syllabus subcommittee meeting for deciding the syllabi for III-VIII semesters of R2017 B.E(CSE), B.Tech(IT) and B.E(C&C)programs.
4. A review meeting with Caterpillar was organized to discuss the progress of the research projects titled, "***Standardization of Parameters***" and "***Flight Path tracking and Data transfer".***

EXTERNAL RECOGNITION

1. **Dr. Chitra Babu, HoD/CSE,** has been appointed as a syllabus subcommittee member and was invited to participate in the syllabus sub-committee meeting for setting the curriculum and syllabi for B.E (CSE) program of university departments under the Rashtriya Uchchatar Shiksha Abiyan (RUSA) scheme by MHRD.

Talks Delivered

Mr. V. Balasubramanian, AP/CSE, delivered a guest lecture in the Anna University approved FDP on 'CS6402- Design and Analysis of Algorithms" organised by St. Joseph's College of Engineering, Chennai on 5.12.17 & 9.12.17.

Mr.V.Balasubramanian

Dr.S.Kavitha

Dr. S. Kavitha, Asso.Prof./CSE, gave a talk in the Anna University approved FDP on CS6402- Design and Analysis of Algorithms" organised by St. Joseph's College of Engineering, Chennai on 8.12.17.

Patent

A Research patent titled "***AN EFFECTIVE FREQUENCY PROVISIONING METHOD FOR SCALABLE DEVICES IN NB-IOT PLATFORM***", invented by **Mr.Shahul Hamead,AP/CSE, Dr.T.T.Mirnalinee, Prof./CSE** and **M.Asritha, student-CSE** applied by **SSN College of Engineering** has been provisionally registered with the application ID E-2/3897/2017-CHE.

Dr.T.T.Mirnalinee

Mr.H.Shahul Hamead

Crossing the FINISH LINE!

Mr.P.Arjun

Ms.S.Sivasankari

Mr.P.Arjun and **Ms.P.Sanju**, Part-time Ph.D scholars under the guidance of **Dr.T.T.Mirnalinee, Professor/CSE**

&

Ms. S.Sivasankari, Full-time Ph.D scholar under the guidance of **Dr.Shomona Gracia Jacob, Asso.Prof/CSE.,**

successfully completed their Viva- Voce examination and acquired their Ph.D Degree.

Ms.P.Sanju

'MIELES WORKSHOP'

Dr. Chitra Babu was invited as a distinguished expert to participate in the Focus Group meeting on content creation at IIT Madras, for the MIELES (Modernizing and Enhancing E-learning Strategies) project that is being implemented by consortium led by the University of Barcelona and co-funded by the ERASMUS+ program of European commission.

GRACE HOPPER CELEBRATION INDIA (GHCI)' 2017

Dr. Chitra Babu participated in the Annual Grace Hopper Celebration India at Bangalore during 16-17 November 2017. GHCI is India's largest technical conference for women in computing and technology. GHCI focuses on the career, research and entrepreneur interests of women in computing and technology. Presenters at the conference are leaders in their respective fields from industry, academia and government.

Dr.Chitra Babu with SSN ACM-W student chapter members

INTERNATIONAL COLLABORATION

Dr. Chitra Babu, HoD/CSE, initiated a meeting with **Prof. Anand Sivasubramaniam** and **Prof. Chita Das M (Department Chair)** of **Pennsylvania State University** to discuss potential opportunities for offering joint programs and also possible faculty/student exchanges.

Talk Delivered

Dr. R. Kanchana, Asso.Prof./CSE, delivered a guest lecture on "Cyber physical Systems and IoT for Smart Governance - Challenges" in the AICTE sponsored 2-week FDP on " Cyber Physical Systems: Challenges and Current Solutions" at Sree Vidyanikethan Engg. College, Tirupati on 11th Dec, 2017. The FDP had 110 registered participants and the talk was well received.

Just for laughs~

How to Translate Work Emails????!!!

I have a question.	=	I have 18 questions.
I'll look into it.	=	I've already forgotten about it.
I tried my best	=	I did the bare minimum.
Happy to discuss further.	=	Don't ask me about this again.
No worries	=	You really messed up this time.
Take care.	=	This is the last you'll ever hear from me.

Contributions of Cook and Karp (1982 and 1985 Turing Award Winners)

As part of the "50 years of Turing Award" lecture series organized by ACM India Chennai Professional Chapter, the 7th talk on "Contributions of Cook and Karp" was delivered by Prof. Meena Mahajan, IMSc on 7th November at the Ramanujan auditorium, IMSc.

Cook received his Turing award in 1982 for laying the foundations of the theory of NP-completeness. His work was highly influenced by the works of Alan Cobham who had emphasized that the efficiency of an algorithm is much more significant than the mere existence of an algorithm that is always guaranteed to halt. Another work which talked about the significance of the efficiency of algorithms was by Jack Edmonds who had discussed a solution for the perfect matching problem. For practical purposes, it is highly important that whether a problem can be solved in polynomial time or in exponential time. Only those that can be solved in polynomial time can be considered as efficient algorithms. This was a major shift in thinking because until then there was no physical computer and hence efficiency was not an issue at all. Turing machines and Recursion theory focused only on the boundaries of computability.

In an aside, it was ironic to note that Cook was denied tenure at University of Berkeley when he was working in the Mathematics department. The loss of UC Berkeley became a gain to University of Toronto, Canada.

Cook came up with the Satisfiability problem as a representative NP-complete problem. Given a formula, finding whether there is at least one assignment of Boolean values to the individual variables under which the formula evaluates to True. The SAT problem was defined independent of Turing machines, yet it captured the inherent hardness of every problem that is solvable by a non-deterministic Turing machine. Cook defined the P and NP complexity classes in which intuitively for the problems in class P, the solution is easy to find whereas for the problems in NP, the solution is rather easy to check. Cook agonized over not being able to include Primes into the class of NP-complete problems. In retrospect, it is very interesting to note that there was a perfect reason for not being able to do so, because in 2002, Manindra Agarwal et al. proved that there exists a polynomial time algorithm for finding whether a given number is prime or not.

Prof.Meena Mahajan
IMSc

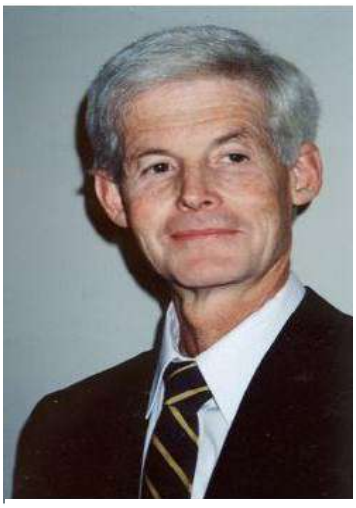
Karp received his Turing award in 1985 for identifying a vast set of NP-complete problems from diverse domains. Although it appears that once the first NP-complete problem SAT was identified and proved by Cook, identification of subsequent NP-complete problems should be relatively easier, Karp really did it in a big way and also provided a standard methodology for proving problems to be NP-complete. Such a large diverse set of problems turning out to be NP-complete, brought the question of whether the class P = NP to the fore. If a polynomial time solution to one of these problems can be found, then the whole set of problems in NP will collapse into the class of P.

Though, intuitively, it seems impossible to find such an efficient solution, there is no formal proof for the achievable lower bound either. It still remains as the canonical challenge. Clay Math institute has announced 1 million dollars to anyone who solves this grand challenge.

Richard Karp

It was also worth noticing that the award-winning papers of both Cook and Karp were conference papers and were never published in journals. Publishing papers in prestigious computer science conferences are still highly valued and considered on par with journal publications.

At this point, Prof. Meena brought in a nice suspense showing the 2 photographs in the clay Math institute challenge web page. One was Steve Cook. Who is the other? It turned out to be the Russian computer scientist Leonid Levin who has independently come up with the notion of NP-completeness and has identified the same SAT as a canonical NP-complete problem. Unfortunately for him, he was denied Ph.D in Russia for his work due to political reasons and the terse two-page paper that he wrote in Russian came to light much later. Although he received his Ph.D later from MIT in U.S, he did not receive the Turing award. What an injustice? However, the result "SAT is NP-complete" is credited to both Cook and Levin and has come to be known as Cook-Levin Theorem.



Stephen Cook

Leonid Levin

Altogether, it was a fantastic insightful talk connecting up so many different dimensions behind the landmark notion of NP-completeness. Those who are interested to know more can watch the video on youTube.

Dr.Chitra Babu,
HoD/CSE

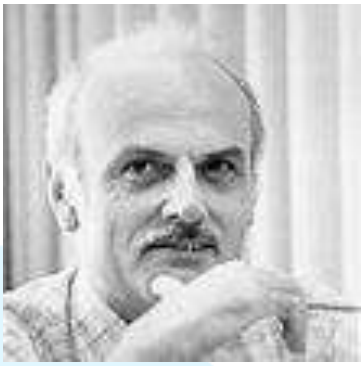
50 Years of Turing Award talk series on Contributions of Edgar Codd

As part of the "50 Years of Turing Award" talk series, the Ninth talk by ACM India Chennai Professional Chapter was scheduled at CEG, Anna University on 29th Dec 2017. The topic was “Contributions of Edgar Codd (Turing Award Recipient of 1981 for his invention of RDBMS)”. The speaker was Prof. Shamkant Navathe from Georgia Institute of Technology who had interacted with Dr. E.F. Codd as a colleague during their career at IBM. The speaker is also one of the authors of the renowned “Fundamentals of Database Systems”

(L-R: Dr.P.Mirunalini, Dr.Chitra Babu, Prof.Shamkant Navathe, Mr.B.Senthil Kumar)

The talk focussed on Codd's earlier biography of studies and his work at IBM, moving on to motivation behind developing the Relational Model for database systems. The relational model

is widely recognized as one of the great technical achievements of the 20th century. It revolutionized the way databases were perceived. Several database products did indeed exist at that time; but with no solid theoretical foundation. Codd recognized the need for such a foundation and, applying his knowledge of mathematical logic was able to provide the relational model of data.



Edgar Frank Codd

The model provided a theoretical framework within which a lot of problems can be attacked in a scientific manner. As a consequence, it is no exaggeration to say that essentially all databases in use or under development today are based on Codd's ideas. Whenever anyone uses an ATM machine, or purchases an airline ticket, or uses a credit card, he or she is effectively relying on Codd's invention. The relational model was in fact the very first abstract database model to be defined.

For the remainder of his professional life, Codd worked tirelessly to encourage vendors to develop fully relational products and to educate users, vendors, and standards organizations regarding the services such a product would provide and why users need such services. He was also interested in the possibility of extending his relational ideas to support complex data analysis, coining the term OLAP (On-Line Analytical Processing).

The talk culminated with the discussion on other data models such as object-oriented or object-relational data models for unstructured data such as no sql databases, big data, data models of semi-structured data such as XML database and deductive databases. Also the speaker highlighted the robustness and reliability of the relational model when compared with other data models for the database.

Mr. B. Senthil Kumar
AP/CSE

CONTRIBUTIONS OF FRAN ALLEN – 2006 TURING AWARD WINNER

Frances Elizabeth ("Fran") Allen was the first woman to receive the **Alan M. Turing award** which is considered to be a **"Nobel prize in computing"** during the year 2006 for her contributions that are still working in place of real compilers. The contributions of Fran Allen were discussed by Dr. Krishna Nandivada, Associate Professor, Department of CSE, IIT Madras as part of "50 Years of Turing Award" talk series conducted by ACM India Chennai Professional Chapter on 5th January 2018.

Frances Elizabeth Allen

Allen joined IBM to teach the new programming language FORTRAN for research scientists in IBM. The programs developed in FORTRAN were running slowly when compared to that of the assembly language programs during that time. Hence, as part of her teaching, she went through the source code of the FORTRAN compiler for possible optimization. Subsequently, she has constructed a control flow graph from the program statements to discover the hidden properties of the code such as re-use the value of an expression, unreachable statements, etc. These properties were useful for optimizing programs. This in turn improved the execution time of the programs. Further, Allen tried to improve the execution time of the programs with the concept of *program dependence graph*. This graph was generated by analysing the inter-procedural flow analysis to extract parallelism from the sequential programs. This was her project named PTRAN (Parallel Translator) for the parallel compilation of the FORTRAN program which was not written for harnessing parallelism. Subsequently, Allen had spent her time in designing a single compiler for three different languages, namely, FORTRAN, Autocoder (A language similar to COBOL) and a new language Alpha with common optimization back end.

To summarize, Fran Allen had focused on considering the programs written by the programmers and made them run efficiently through optimization by doing sophisticated analysis on that program. Her series of contributions are not artificial benchmarks. However, her techniques are still used even in present day programming language compilers.

Dr. B. Prabavathy & Ms. K. Madheswari
Faculty/CSE

Contributions of Judea Pearl - Invention of Bayesian Networks

I would like to share the abstract of the talk delivered by Prof. Deepak Khemani and my whole experience in attending the "50 Years of Turing Award" talk series, the eighth talk on “Contribution of Judea Pearl for his invention of Bayesian Networks” which was conducted at Turing Hall, Department of CSE, IIT Madras on 19th December, 2017.

Judea Pearl

Judea Pearl was a Turing Award recipient of 2011 for developing the theoretical foundations for reasoning under uncertain conditions as well as the graphical methods and symbolic calculus that enable machines to reason about actions and observations and to assess cause-effect relationships.Although it took years for his concepts to propagate because they went against traditional approaches, the number of applications that incorporate his work today are ubiquitous.

Prof. Khemani gave some examples that exhibit causal-effect relationships in real world and explained how his approach to reasoning has helped machines solve complex problems in many different areas. Given certain symptoms, what is the most likely medical diagnosis? If a person exhibits a particular pattern of behaviour, how likely is she or he to be a security risk? If someone possesses a certain set of genotypes and phenotype, how likely is it that he or she is a carrier of a certain disease?

Further he spoke about some of the computing applications where Pearl’s work is the foundation that requires probabilistic reasoning such as Google searches, credit card fraud detection systems and automated speech recognition systems.

In addition to its impact on probabilistic reasoning, the Bayesian Network has changed the way causality (cause-effect) is handled by the empirical sciences, which are based on combining experiments and observations.

Pearl’s contributions to causal reasoning have had a major impact on the way causality is understood and measured in many scientific disciplines, including philosophy, psychology, statistics, econometrics, epidemiology and social science.

And at the end of the session many queries were raised by the audience comprising of people from statistics and computer science, which showed their interest and the understanding of the concepts explained by the professor and he clarified at his best. Altogether it was one of the wonderful sessions which I have ever attended. And particularly it is helpful for people like me who are pursuing their projects in the field of Data Analytics where it is necessary to understand the correlation in data which requires fundamental understanding of cause and effect.

Dr.V.S.Felix Enigo,
Asso. Prof./CSE

MSR-ACM India- Academic Research Summit

I was invited for the Academic Research Summit that was jointly organized by Microsoft Research India and ACM India at IIIT Hyderabad on 24th and 25th January. This is the 4th edition of this summit and the earlier ones had been conducted in Delhi, Pune and Bangalore. It was an awesome two days hearing a lot of stalwarts in the field of AI.

Prof. Raj Reddy from CMU gave a keynote talk on "AI in the service of Humanity". He touched upon how innovative solutions can be devised for basic societal needs by designing and deploying Intelligent agents as guardian angels that can monitor, diagnose and provide necessary solutions. He also highlighted some of the current lacuna in the deep learning systems in their inability to explain how they arrived at a particular solution, which is very essential for legal purposes. He also pointed out the brittleness of these systems in getting fooled when some noise gets added to images, where the humans do not get confused.

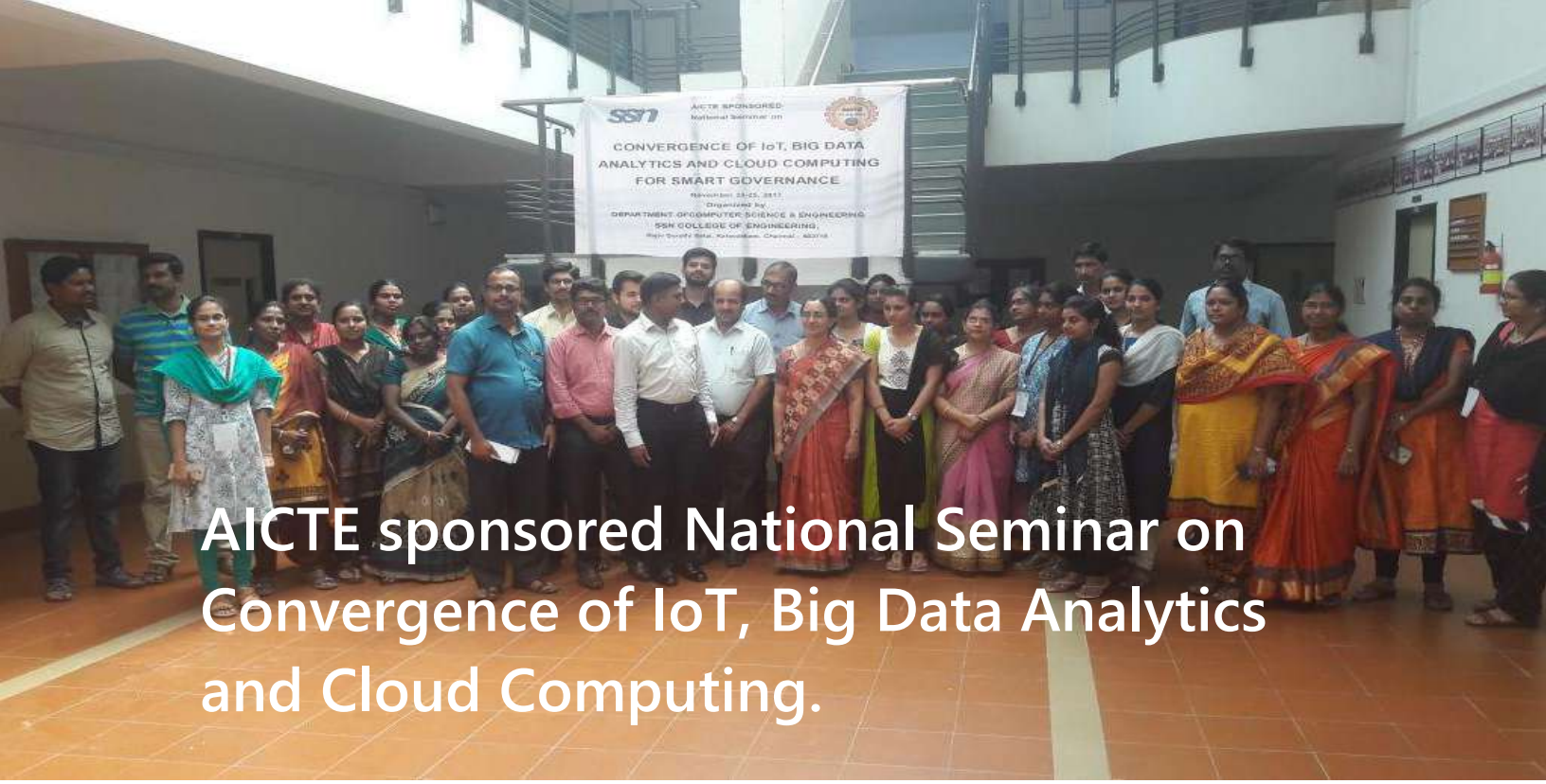
There were interesting short talks by ***Prof. C.V. Jawahar, Prof. Pushpak Bhattacharya and Prof. Preethi Jyothi*** on the state-of-the-art in vision, NLP and speech respectively. There was also an interesting short talk on "Self-driving cars" by ***Shanthi Swarup*** of Mathworks. The Panel discussion on "AI and Perception" was very thought-provoking, where ***Prof. Hema Murthy, Subhashis Chowdhry, Mausam and Victor Bahl*** participated. It was concluded that combining domain knowledge and human intuition with data-driven Machine learning would benefit in the long run.

The second day began with another keynote talk by ***Dr. Eric Horvitz***, who heads the Global Microsoft Research. He holds a Ph.D in computer science as well as an M.D in Neuroscience. He emphasized how AI could play a major role in healthcare domain. He also talked about how to make machines attain more general intelligence, going beyond achieving the isolated wedges of competencies such as playing chess, AlphaGo or Jeopardy. He also reflected that computers can be made to learn the nuances of life leveraging on rich simulations and analyzing the fidelity of the simulated world with the actual world. One of the very useful applications that he mentioned was how epidemic outbreaks can be predicted from multiple evidential sources and suitable preventive actions can be taken well in advance. He also pointed out the caveats of AI in terms of its lack of trustworthiness, fairness and transparency by learning the human biases.

An eminent panel comprising ***Dr, Anandan***, who currently is the CEO of Wadhwani Institute of AI, ***Dr. Eric Horvitz***, ***Prof. Raj Reddy, Prof. Partha Pratim Charaborty***(Director of IIT, Kharagpur), ***Mr. Ajay Sawhney***, Secretary, Ministry of Electronics and Information Technology discussed "AI and Society". It was concluded that it is important to learn the unique societal challenges of India by studying at the ground level and then devising suitable solutions by fruitful collaborations among academia, industry and government.

Another set of short talks on Extreme classification, State of unsupervised Learning and Deep learning were given by ***Manik Varma, Chiranjib Bhattacharya and Vineet*** respectively. The final concluding keynote talk on Model based Machine Learning was by ***Dr. Christopher Bishop*** who is the author of the renowned classic pattern recognition book. It was a fantastic talk and I felt lucky to be there hearing him live. He talked about Probabilistic Graph modeling and how Neural networks, Hidden Markov models and Kalman filters are special cases of Bayesian networks. He also highlighted how probabilistic programming is completely disrupting and transforming the way in which the software gets traditionally developed.

Dr.Chitra Babu
HoD/CSE



AICTE sponsored National Seminar on Convergence of IoT, Big Data Analytics and Cloud Computing.

The National Seminar on "Convergence of IoT, Big Data Analytics and Cloud Computing" was organized by the Department of Computer Science and Engineering, with the financial assistance from AICTE during 23-25 November 2017.

Coordinators:

Dr.Chitra Babu,
Dr. S.Kavitha,
Mr.V. Balasubramanian

No of Participants: 43 (Researchers, Academia and Corporates)

Speakers:

1. Dr. Vaidehi Vijayakumar, Dean & Sr.Professor, VIT-Chennai
2. Dr. Ranjani Parthasarathi, Professor, CEG, Anna University, Chennai
3. Dr. Sourish Das, Assistant Professor, Chennai Mathematical Institute, Chennai
4. Dr. Venkatesh Sarangan, TCS Innovation Labs, Chennai
5. Mr. Bipin RR, VP and Head, Digital Services - IoT, Tata Elxsi, Bangalore
6. Mr. Vishnu Gaurav Selvaraj, Analytics Team Lead, Caterpillar Inc, Chennai
7. Mr. Murali Chandrahasan, Head, Engineering IT Solutions, L&T Technology Ltd.

8.Mr. Kailash S, Principal Engineer, C-DAC, Chennai

9.Mr. Raghuram Joshi, General manager, Robert Bosch Engineering Pvt. Ltd.

10. Mr Siddharth C, IBM Watson IoT Platform, IBM India Pvt Ltd, Kolkata

11. Mr SasiKumar, Coda Global

This National seminar intended to provide an opportunity for faculty and researchers employed in various technical institutions for upgrading their knowledge in the areas of IoT, Big Data Analytics and Cloud Computing. The objective of this seminar was to discuss the complex interplay between variety of technologies that are enablers for achieving Smart Governance.

After the formal inauguration, the first key note talk was given by Dr. Vaidehi Vijayakumar, on "*Convergence of IoT and Cloud: Intelligent Remote Health monitoring in Sensor Cloud*". In the next session, Mr. Bipin RR gave a talk on "*Internet of Things***".** In the afternoon, the first session was handled by Mr Siddharth C who enlightened the audience on "*Watson IoT Platform & Solutions*". The next talk was given by Mr. Vishnu Gaurav Selvaraj on "*Digital Disruption and Transformation across Industries.*"

Dr. Chitra Babu (HoD/CSE), Dr. Vaidehi Vijayakumar (VIT) and Dr. S.Salivahanan (Principal/SSNCE)

On the second day, the first session was handled by Dr. Sourish Das, who gave a talk on "*Big Data Regression Using Tree based segmentation*" .In the next session, Mr. Raghuram Joshi, delivered a talk on "*Addressing first mile challenges using cloud and analytics*". In the afternoon the first session was handled by Dr. Ranjani Parthasarathi, who spoke on "*IOT Security*". The last session was handled by Dr. Venkatesh Sarangan, who delivered a talk on "*Analytics for built Infrastructures*".

The third day - first session was handled by Mr. Sasikumar V. It was a talk cum hands-on session that introduced the audience to "*Server less computing*". The second session was handled by Mr Kailash on the topic "*Smart Technology for Governance 3.0*" .The next session was handled by Mr Govindaraj and Mr Murali Chandrahasan who gave a talk on " *Enterprise Manufacturing Operation Transformation enabled by IT-OT integration, IIOT and Analytics*". The sessions concluded with certificate distribution.

The take away information from the seminar is that one could think about the varied challenges that arise when technology is introduced in Government agencies and Government related applications. Integration of heterogeneous departments at state level and national level is a big issue. Protocols for security at different levels of IoT techology is a must. In this digital world, Big data is not the only problem, We also face *SMALL DATA* problem. There are few applications like breakage in the sewage system, amount of energy consumption in a particular building where we do not have enough data to analyze.

Dr. D.Venkata Vara Prasad, Prof. /CSE
Ms. Y.V.Lokeswari, AP/CSE

FDP on Deep Learning for Image and Text Analysis

Prof C Aravindan and the Machine Learning Research Group of the Department of CSE, conducted a two-week Faculty Development Programme (FDP) on Deep Learning for Image and Text Analysis during 15-23 November 2017. The FDP was sponsored by AICTE.

The objective of the programme was to help the faculty understand the principles of deep learning and learn to build deep neural networks for solving problems in image and text analysis. There were about 60 participants, teachers in engineering colleges, from various parts of India.

Talks were delivered by eminent speakers from reputed institutions and industry such as IIT-Madras, IIT-Kharagpur, IIT-Jodhpur, IIIT-Hyderabad, CMI, Anna University, AU-KBC Research Centre, Amrita University, Qube Cinema Technologies and University of Helsinki.

The hands-on sessions helped the participants practice the ideas in Python-based tools such as TensorFlow, Keras, OpenCV, and NLTK. The FDP equipped them to use deep learning for various machine learning tasks and exposed them to the challenges in deep learning research.

Dr.R.S.Milton
Professor/CSE

RESEARCH INNOVATIONS IN SOFTWARE ENGINEERING

SSN College of Engineering, Chennai, Tamil Nadu, CSI student chapter, in collaboration with TCS, Chennai organized a national level workshop on Research Innovations in Software Engineering (RISE) 2017 workshop for students and faculty members. Many students and faculty members from Tamil Nadu attended this program.

Resources person's from industry and institute delivered their lectures and shared their thoughts and challenges prevailing in software engineering research. On the first day of the workshop, Dr.S.Sivakumar, Professor, SSN SASE delivered a talk on "Research trends in Software Architecture", followed by Dr. Y. Raghu Reddy, Professor, CSE, IIIT, Hyderabad. He delivered a talk on "Usability Evaluation based on Code Pattern Analysis". After lunch, in the afternoon, Mr G. Ananda Narayanan, TCS, Chennai delivered a talk on "Software Security Assurance, automation and IT operational metrics".

With the same enthusiasm, on the second day, the participants attended the 3rd talk delivered by the speakers. On the second day, Dr. A.Chamundeswari, Professor, CSE, SSNCE delivered a talk on "Global Software Development : A Design Framework to measure the risk of the Global Practitioners.". Followed by the talk a photo session was arranged. After a quick break, participants attended a talk delivered by Dr. Meenakshi D'Souza, Professor, CSE, IIIT Bangalore, on the topic "Symbolic execution based testing". In the afternoon after lunch, Mr. K.A.G. Kapilan, HCL Technologies, Chennai delivered a talk on "An approach for secure Software update in Infotainment system". Feedback and open discussion was held, followed by certificate distribution. Thanks to the volunteers and participants who were instrumental in making the workshop a great success.

Organizing Team - RISE

4th IIT Madras- Tokyo Tech Joint Symposium on Frontiers in Bioinformatics: Large Scale Data Analysis, Resources and Drug Design.

IIT- Madras and Tokyo Tech had jointly organized a 2 days symposium during 10th & 11th November 2017 at IIT-Madras (IC&SR Auditorium). Dr. M. Michael Gromiha (IIT-M), Dr. N. Manoj (IIT-M), Dr. Y. Akiyama (Tokyo Tech) and Dr. M. Sekijima (Tokyo Tech) are the organizers of the symposium. There were totally 6 sessions handled by researchers working in Bioinformatics.

The first session described Protein Sequence, Protein Structure and Function Analysis which discussed about three dimensional structure of protein sequence motif. The second session illustrated Computer Aided Drug Design which was discussed on the basis of computational methods for drug design. The third Session was about Bioinformatics Databases and Algorithms which detailed about prediction of protein-protein interactions with MEGADOCK tool and parallelization of algorithms. The fourth session involved discussions on drug design. The fifth session was about Big Data analysis with machine learning and deep neural networks applied for identifying driver and passenger mutations in cancer. The last session briefed about the protein pathways through Subgraph mining.

There was poster presentation that focussed mainly on the applications of machine learning techniques on clinical data for prediction, finding pathways for causing disease and analyzing big data using parallelization methods.

The symposium gave a very good insight that clinical research demands researchers working in different disciplines to collaborate together in order to obtain quality outcome.

Ms.Y.V.Lokeswari, AP/CSE & Ms.R.Athilakshmi, JRF/SERB

Dr. M. Michael Gromiha (IIT-M), Mr. Shandar Ahmad (JNU, New Delhi), Dr. N. Manoj (IIT-M), and Dr. M. Sekijima (Tokyo Tech) (Left to Right)

TENCON 2017

The 2017 IEEE Region 10 Conference (TENCON) was held at The Wembley St. Giles Premier Hotel, Penang, Malaysia on 5 – 8, November 2017. TENCON is a premier international technical conference of IEEE Region 10, which comprises 57 Sections, 6 Councils, 21 Subsections, 514 Chapters and 1159 Student Branches in the Asia Pacific region. The theme for TENCON 2017 is Bridging the Gap by bringing together researchers, educators, students, practitioners, technocrats and policymakers from across academia, government, industry and non-governmental organizations to discuss, share and promote current works and recent accomplishments across all aspects of electrical, electronic and computer engineering, as well as information technology.

The conference was conducted for three days from 6th to 8th, November with several tracks as parallel sessions. Several keynotes were presented by different delegates. On 6th November 2017, during the first session Ms. Karen Bartleson, 2017 IEEE president and CEO discussed several exciting IEEE initiatives, including IEEE's participation in global public policy and ensuring ethical considerations in technology and design, support for young professionals and women in engineering, and continuing worldwide industry engagement. Following her talk, Dr. Hein Teik Chuah, IEEE Fellow ad President, UTAR has delivered a talk on the title "4th Industrial Revolution and One Belt One Road: Challenges faced by Future Engineering Graduates". In his talk, various trends and challenges facing the world, due to the coming of the new Digital Revolution, were discussed. He also discussed about the ideas and inventions to tackle the challenges. The next day Dr. Vincenco Piuri, IEEE Fellow talked about

Dr.P.Mirunalini
Associate Professor

Papers were presented in different tracks and interactive sessions such as Biomedical Engineering, Circuits & Systems, Power & Energy, Signal & Image Processing, Wireless Communication and Network, Computer Architecture & Systems and Computational Intelligence. I have presented my work titled "Tracking of object in occulded and non-occulded environment using SIFT AND Kalman filter" under interactive session.

Humans Vs AI ?

The Stanford Question Answering Dataset (SQuAD) consists of a series of questions to which the answers can be found within more than 500 Wikipedia entries.

Alibaba's deep neural network model scored 82.440 on the 'exact match' part of the test, beating the scores achieved by humans (82.304). Microsoft's similar model achieved a score of 82.650.

GUEST LECTURES

IoT, Big Data & Cloud

A Guest Lecture was handled by **Mr. Balaji Ganesan**, **Research Software Engineer at IBM Research Labs Bangalore,** for the students of 3rd Year on 17th January. He works on Information Retrieval and Natural Language Processing. The topic of the lecture was Smart Compliance with IOT, Big Data and the Cloud. The three use cases discussed were Public Distribution System, e-Way bill system under the Goods and Services Tax Regime and enforcement of traffic regulations on roads. He explained the use cases, talked about the current state of affairs and discussed how IOT, Big Data analytics and Cloud could help detect malpractices and violation of laws. For instance, he talked on how Ration Shop Owners could mix low quality and high quality grains, allowing them to make profit by selling the grains at the market price.

He mentioned how Ration Shops would have fictitious customers. This malpractice was found prevalent in villages. By writing names of all customers on a wall and asking villages to identify people they knew, led to the discovery of non-existent customers. This was done on a small scale, but Aadhar essentially does the same on a large scale.

Similarly, when trucks carry goods across States, they must be checked which in turn causes long queues. An example of long queues is the Toll Gate in cities. One way to handle this is to provide a tag to each vehicle. This tag contains an ID which will be used to recognize the vehicle and make payments automatic. He also discussed how though technology is aiming for Driverless cars, there seems to be almost no way to get all the details of particular vehicle by just looking at it. Thus, detecting and getting hold of speeding vehicles is still done manually. This could be handled similar to the second use case.

He concluded by clearing the doubts raised by students. We learnt a lot from this lecture.

'Introduction to Python Programming with hands-on'

Dr.J Bhuvana and Dr.P. Mirunalini, Asso. Profs., Department of CSE, delivered a guest lecture on 'Introduction to Python Programming with hands-on', for BE II year - Section "A" students.

Dr.J.Bhuvana, Asso.Prof./CSE

Dr.P.Mirunalini, Asso.Prof./CSE

Java App Development with DevOps

The students of 3rd Year CSE were introduced to "Java Application Development with DevOps" through a Guest Lecture held on 18th December 2017. The speaker, Ms Aparna Shukla is a certified Tech mentor on Digital Transformation Project in DevOps at NIIT Limited, Chennai. The talk began with a discussion on the technology stack being divided into four categories namely Front End, Backend, Middleware and Environment. The key frontend technologies are AngularJS (used to develop single page applications) and Bootstrap (used to provide responsiveness to applications).While Apache Tomcat can be used for backend, data storage is taken care of by mongoDB or H2 (a lightweight database). Similarly Eclipse serves as the work environment and JUnit is used for testing.

Here on the focus of the talk shifted to Spring MVC. Beginning with the architecture, we learnt how a Dispatcher Servlet handles the incoming HTTP requests, processes it and sends a suitable HTTP Response. The four main components of Spring MVC are Handler Mapping, Controller, View Resolver and View. The request reaches the Dispatcher Servlet which maps the requested component to a handler. The handler is returned to the Servlet which sends the same information to the controller. The controller is only able to find the logical name for the view. This logical name reaches the Servlet and is sent to View Resolver to locate the actual view. This View is then displayed to the end user.

The speaker had also developed a Bookstore (using Spring MVC) site that could have two types of users – an administrator and customers. Administrator can add, delete or modify details of books. Customers can view available books without logging in but while adding a book to cart, they are redirected to the login page. Also new customers can register at the site. The 'Login to Add to Cart' feature is implemented using Spring Security. This application was developed using the Eclipse IDE and the data was stored in a H2 database. She proceeded to explain every line of code, making sure to point out the annotated classes used and the purpose they served. A few examples being @controller (denotes a controller),@Hibernate (to create a table automatically),@id (denotes primary key of the table).

The talk concluded with the Speaker clearing doubts raised by students. Students who correctly answered the questions asked by the speaker were rewarded as well. On the whole, it was an interesting lecture and we had a lot to take back from it.

Priyadarshini J R, III CSE 'B'

National workshop on Atmospheric Aerosols, Data Assimilation & Weather Modelling (AADW - 2018)

A one day National workshop on Atmospheric Aerosols, Data Assimilation & Weather Modelling (AADW - 2018), held on 25th January 2018 was jointly organized by SSN College of Engineering and SSN - Centre for Radiation Environmental science and Technology (SSN - CREST) in association with Indian Nuclear Society, Kalpakkam branch.

The following members are the Conveners of the workshop

Dr. N.P. Rajesh, Physics & SSN-CREST
Dr. B.K. Nashine, Associate Director, Fast Reactor Technology Group, IGCAR, Kalpakkam Dr. C.V. Srinivas, Scientific Officer-G, Co-Convener, RSD, IGCAR

Organizing Committee includes

Dr. R. Sujatha, Dept of Mathematics,
Dr. P. Mirunalini & Ms. R. Priyadharsini, AP, Dept of CSE,
Shri A. Bagavath Singh, Shri P.T. Rakesh, Dr. Amit Kumar ,IGCAR, Kalpakkam

A total of 64 internal and external members participated in the workshop. The participants were scientists from IGCAR, SSN students, Research scholars and students from other colleges. The workshop was inaugurated by Dr. B.K. Nashine, IGCAR who elaborated the role of atmospheric aerosols in weather and climatic changes. Dr. K. Krishnamoorthy, Former director, Space Physics Laboratory, VSSC, Trivandrum felicitated the inauguration with a guest talk.

The first session was handled by Prof S. Lakshmivarhan, Oklahoma University where he elaborated the concepts of Data Mining, Data Assimilation & Prediction. Dr K.Krishnamoorthy handled the next session on Atmospheric Aerosols and their role in air pollution and climate change. The final session by Prof S. Lakshmivarhan was, on issues in forecast accuracy and modelling of Forecast Error Correction using the Forward Sensitivity Method.

Ms.R.Priyadharsini,
AP/CSE

INTERNSHIP AT GUVI GEEK TECHNOLOGIES

I recently completed my internship at GUVI GEEK TECHNOLOGIES. I along with my teammate, Vishal won a contest conducted by Meenakshi Engineering college and we got the opportunity to avail the internship.

K Sundar Rajan
A Vishal
II CSE 'B'

We worked on the same project which was to remodel Code Kata-their library of programming problems, in the lines of competitive programming. We prepared over 500 questions covering a wide variety of topics and programming techniques such as Dynamic Programming, Divide and Conquer, Strings and Graphs.

We also learnt basics of Web Development and we designed a simple Login/Signup authentication page using Bootstrap, JQuery and PHP. We also worked with MongoDB. Overall it a was an unique experience and we learnt a lot from the senior programmers.

National Programme on Technology Enhanced Learning - NPTEL

Dr. K. Vallidevi has obtained the ELITE type NPTEL certificate for the Cloud Computing course. She has done this online course along with the final year students while handling the Cloud Computing theory and Lab for them. She had discussed the additional topics covered in the NPTEL course, during the theory hours.


Elite

NPTEL Online Certification

This certificate is awarded to

K.VALLIDEVI

for successfully completing the course

Cloud Computing

with a consolidated score of 70 %

Online Assignments	21.5/25	Proctored Exam	48.75/75

Total number of candidates certified in this course: 1627

Aug-Oct 2017
(8 week course)

Indian Institute of Technology Kharagpur

In partnership with NASSCOM

I – CELL TALK

The guest lecture started at around 11 am on 03-01-2018.The lecture was given by Mr.Abhishek Kataria, an alumnus of SSN College of Engineering (Batch 2014). He completed his Masters in Computer Science at Rutgers University, New Jersey, USA. He currently works at Square. After a brief introduction about him, he explained in detail about his robotic project which won the first place. The robot was designed to pick a ball of the colour specified. He also shared his work experience at Square. Soon after that, he initiated an interactive session to clear our doubts and queries regarding placements, higher education and competitive exams. He gave tips on what 2nd and 3rd year students should do to get internships and placements in top companies like Amazon, Microsoft, Google, etc. The session was very informative and gave us an idea on how we should work towards our goals.

Shivaani K-II CSE

INTERNSHIPS

Thoht Delta Research

Pooja Priya V
III CSE B

I worked on calculating the bus occupancy using an over-head camera by applying Image Processing techniques in Thoht Delta Research and Development Centre. Instead of developing a module that detects faces using a frontal camera, an overhead camera is placed to detect motion. The Odroid XU4 board is interfaced with a Logitech USB 2.0 camera and the video feed is obtained using OpenCV. The feed is processed frame by frame and Background Subtraction is applied to segregate the moving objects (foreground) from the static setting of the bus (background).

Further filters like Erosion and Dilation are applied to smoothen the frames. Contours, which represent the moving people, are detected based on blob movement and the centroids of the contours are tracked across the feed. Threshold area is set for the contours to improve accuracy by invalidating the insignificant movements caused by jitter in the feed. Based on the centroid movement, the counters are adjusted to display the number of people moving in and out. Every time the counter changes, a trigger function is called to save the corresponding frame and write to an output script stating the time, date and present count for processing purposes.

ZYDE SOFT SOLUTIONS

Myself, Sharmadha, Shruthi got an opportunity to do our winter internship in Zyde Soft Solutions a leading software development company. We worked for a month where we were first asked to learn few techniques related to Web Development like Bootstrap, Json. We were asked to create mock UI designed web pages from existing websites which stand out in its UI. The manager found us inquisitive with how fast we learnt new techniques and how we were able to finish the mini tasks given by he earlier than the deadline. The following week we were asked to develop an application using Java/J2EE technologies. We developed a Visitor Management System Application as ordered and designed by the manager. We used Java technologies and managed to fulfill the UI designs as he wanted it to be. It was very challenging for us as the time period was less. We were able to cope up with multiple tasks as well as helped us brush up our skills in programming. At the end of the internship, he gave us few tips of the present technologies and their major breakthrough in the future. It was a really great experience and we are still hoping for better opportunities in the future.

Shivani K
III CSE B

ALUMNI SPACES

BATCH 2012 – 2016

Samiya Nasim, has recently joined McKinsey & Co, Chennai as Data Analyst!

Sruthi V, who is currently pursuing MS in Computer Science at North Carolina State University, has received a job offer from BlackRock, an investment banking company!

Aishwarya S, who is currently pursuing MS in Computer Science at North Carolina State University, has received a summer internship offer from Microsoft!

BATCH 2011 – 2015

Neela Niranjani, who won the University Gold Medal for the first rank in 2015 and who is currently pursuing MS in Computer Science at North Carolina State University, has received a job offer from Oath Inc.!

INTERNSHIP AT DOORDARSHAN

I interned at Doordarshan, a public service broadcaster founded by the Government of India for a week in Port Blair. The internship was more towards the electrical and communication side but I liked more the server part which they have recently applied for their transmission. They have used a media server and a client installed with .NET framework in which they are converting videos to another video format in real time using VB language. All the rest was about how transmitting and receiving data through dish works and the new technologies currently available in market related to communication. On the whole I got to learn about how cameras, television, dish works, how data encoding in server takes place and also about the different storage devices.

Yamini L,

II CSE 'B'

TRIBUTE 2018 –SSN ALUMNI MEET

"Tribute 2K18" was held on 6th January 2018 at SSN College of Engineering, Chennai. Tribute 2K18 was a bigger, more enjoyable and a thrilling experience for all alumni and their families. The faculty from the Department of CSE were happy to interact with the alumni - a reviving of past memories. We were very happy to learn that our Alumni are well placed and climbing the corporate ladder making splendid achievements.

Sanctioned Faculty Internal Funding Projects-2017-2018

S.No.	Faculty name(s)	Title	Duration	Sanctioned Amt in lakh
1	Dr. B. Bharathi (CSE) Dr. S. Kavitha (CSE)	Speech enabled interactive voice response system	3 years	2.10
2	Dr. P. Mirunalini (CSE) Dr. C. Aravindan (CSE)	Automatic detection of stenosis in computed tomography angiography (CTA) images of heart using deep learning techniques	2 years	2.85
3	Ms. K. Lekshmi (CSE) Ms. K. Madheswari (CSE)	Automated hepatic disease diagnostic system for carcinoma in histopathology images	3 years	0.30

Sanctioned Student Internal Funding Projects-2017-2018

No	Name and Year of the Students	Project Guide(s)	Title of the project
1	K. Anirudh Shenoy Akash Kumar Pujari T. S. Abishek (II)	Dr. R. Kanchana	IOT based street lighting system
2	Priscilla Andrew J.R. Priyadarshini Varun Suresh R. Vidya (III)	Ms. S. Rajalakshmi Ms. S. Angel Deborah Mr. K.R. Sarath Chandran	Automated waste segregator
3	S. Arul Thileeban Daniel Jeswin (III)	Dr. R. S. Milton	WiFi sniffer with malicious intent detection
4	Sakthi Uma Maheswari Soundarya Venkatesh Sowmiya S Swathi Nagarajan (III)	Dr. V.S. Felix Enigo Ms. K. Madheswari	Smart traffic signal
5	S. Dharani S. Harshini Kalaivani Kumaran B. Logesh	Mr. K.R. Sarath Chandran Ms. S. Angel Deborah	Home automation with IOT using speech recognition
6	S. Poorvaja (III) V. Pooja Priya Vanshika Sridharan	Mr. K.R. Sarath Chandran Ms. S. Angel Deborah	Intelligent traffic control system using RFID and GSM

7	A. Kavithasri S. Aishvarya (II)	Ms. M. Saritha Ms. S. Rajalakshmi Ms. S. Angel	Vehicle accident detection and reporting system
8	S. Gajesh H. Gokul (EEE III) V. Gomathy (EEE III)	Dr. D. Thenmozhi	Object recognition bot (ORB)
9	L. Yamini (II) Keerthana Ravi (ECE)	Dr.Valli Devi	Infrared vein viewer
10	R.G. Sudha Parimala V.S. Sangeetha R. Kavya (III)	Ms. S. V. Jansi Rani Ms. R. Priyadharsini	Advanced manoeuvre detection and alert systems.
11	S. Sharmadha K. Shivani K. Shruthi (III)	Ms. K. Madheshwari	Digital age-Smarter cradle system for enhanced parenting
12	V. Priyanka K. Shivaani K. Soumya T. Sowmya (II)	Dr. K. Valli Devi	IOT based water purity checker powered by solar energy
13	Himanshu Singhal Manav Rajiv Moorthy M. Charan Abhishek Pal (IT - III)	Dr. R. S. Milton	Smart attendance monitor
14	J. Vigneshwara Prakash D. Harieharaan B. Harrison Solomon Ashwin Krishnan (III)	Dr. B. Bharathi	Background noise filtering in real time call application
15	A. Dhanalakshmi V. Desika Deeviti Navya Sree K. Amirthalakshmi (II)	Ms. K. Madheshwari Dr. S. Saraswathi	Smart fire detection system using electronic nose
16	Arul Noble Jose Rohan (IV Year Mech) Shruti Seshadri Nathan (IV Year ECE) S. Anand (II) J. Jennifer (II)	Ms. S. V. Jansi Rani	Human-wildlife conflict reduction technology
17	B. Laxmaan N. Apoorva (III)	Dr. S. Kavitha	Musical audio modulated solid state tesla coil
18	Akshaya Ranganathan G. Deepsheka B. Janani (II)	Mr. K.R. Sarath Chandran Ms. S.V. Jansi Rani	Wearable heart attack predictor and chronic heart care monitor
19	B. Keerthana S. Keerthana Priya R.N. Kirtana, K.Kripa	Dr. S. Kavitha Dr. B. Bharathi	Smart irrigation system

INTERNSHIP DETAILS

Company Name	Student Name	Year
Admatic Solutions	Kaushik Narayanan	IV
	Saket Ram	
Amazon	Sounderayan B	
	Satheesh P	
	Vrithika M	
AjiraSoft	Shailesh S	
ChargeBee	Raghav Nandakumar	
IIT Madras	Sreenidhi V	III
	Aarif Noordeen	
	Kaswhik Kannan	
SCCIP, Japan	Daniel Jeswin Nallathambi	
Thoht Delta Research Centre	Pooja Priya V	
Intellect Design Arena	Nirupan Ananthamurugan	
Admatic Solutions	Vigneshwara Prakash	
HTC Institute for Technology Management & Research	Ashwin Krishnan G	
Tata Elxsi	Anirudh M	
NetworkGeek	Balasankar N	
WOLLTE	Akash Milton M	
SPI Cinemas Private Limited	Harish R	II
	Sathiya Narayan C	
Outofshop Online services	Himanshu Singhal	
PIND Consultants	Abhinav S	
Zyde Soft Solutions	Shivani K	
	Sharmadha	
	Shruthi	
GUVI GEEK Technologies	Vishal A	
	Sundar Rajan K	
TCS	Athreya C	
Assess People	Anish Badri	
Blackboard Technology Ltd	Akash Kumar Pujari	

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AP/CSE

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AP/CSE

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IV YEAR

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Shailesh

Thirumala Devi

III YEAR

Gajesh S