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SMRITI

DEPARTMENT OF COMPUTER
SCIENCE AND ENGINEERING



SSN



SNEAK PEEK

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HOD'S DESK



As another academic year begins, I am happy to look back and take stock of the various activities and achievements by both the faculty and students of our department.

It was really nice to organize the Anna University-sponsored Faculty Development Training Program on the first semester common programming course, “Problem Solving and Python Programming” during the summer vacation. I appreciate Priyadarshini and Rajalakshmi for coordinating the program. The highlight of the event was Prof. Madhavan Mukund of CMI being able to come and handle 4 sessions of the FDTP.

It was personally very satisfying to organize the outreach activity “CSPathshala Workshop for School Teachers on Computational Thinking”, jointly with CSPathshala, CMI, IMSc and ACM India Chennai Professional Chapter. I would like to place my special thanks to Thiruvenkataswamy sir and the entire English department in helping us to reach out to some of the schools. I appreciate Angel, Madheswari, Sujaudeen and the student volunteers for their help in organizing this event.

Congratulations to Jansi and Lokeshwari on successfully defending their PhD theses. My best wishes to them for productive engagement in research.

It is wonderful to see several of our students pursuing very prestigious internships with Google, Goldman Sachs, University of Oregon, TCS, Citi Bank, IIT Madras, IITD&M and many more.

Congratulations to all the students who have been placed in Goldman Sachs, TCS, Navis, Accolite, Nielsen India, Buddi Health, MuSigma and Citi Bank. I also commend the 5 third year students who have bagged internship at Goldman Sachs.

I congratulate all the office-bearers of the Association of Computer Science Engineers. I wish the team the very best in organizing the joint techfest Inventewhich will see its fourth edition this year.

Let us march forward to create new history and milestones.

Dr. Chitra Babu
HoD/CSE

CSE ANNEX BUILDING

Our new annexe building has become completely operational. All the laboratories that were previously housed upstairs in the library building have been moved to the new building. I sincerely thank the construction team headed by Sivakumar, Ganesh Prasad sir, Jayakumar and his team as well as IT Infrastructure Manager Krishnan and his team. I also thank all our department faculty members, non-teaching staff in making this transition, a smooth one.



FACULTY ACTIVITIES

1. **Dr. Chitra Babu** was invited to attend the ACM-W Council meeting at Pune as one of the special invitees held on 31 May and 1 June 2019.
2. **Dr. Chitra Babu** served in one of the eight interview panels which were involved in Management quota admission 2019, during 19-21 June 2019.
3. **Dr. D. Venkata Vara Prasad** attended meeting of Board of Studies in CSE department, Sree Vidyaniketan Engineering College, Tirupati on 10 June 2019.
4. **Dr. D. Venkata Vara Prasad** attended DC meeting for Mr V Sivakumar at VIT University, Chennai on 17 June 2019.
5. **Dr. R. Kanchana** organized a session on "Upa Yoga" for I year rural students as a part of their orientation programme during 26th-28th June 2019. She handled the session on 26th June, 2019.



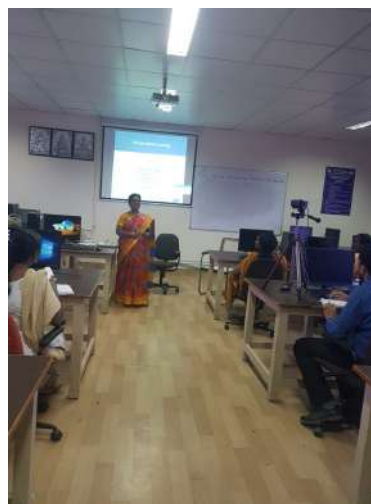
6. **Dr. R. Kanchana** and her JRFs attended a field visit to Civil Hospital, Sujanpur Tesil, HP on 13th May, 2019. She also visited RI session held in Karot of Sujanpur Tesil.
7. **Dr. Chitra Babu** had arranged a meeting with Mr. Nagarajan Rao, Program Director CoE Data Science & AI, NASSCOM on 6 May 2019. Prof. V. G. Idi Chandy and Mr. Amit Tyagi had joined the meeting.
8. **Dr. Chitra Babu** attended the Second Academic Council meeting and presented the curriculum & Syllabi for II-IV year B.E(CSE) and II year M.E(CSE) on 18 May 2019.
9. **Dr. Chitra Babu** attended the presentation given by Siemens Group and its solution partner AMAR regarding setting up of Siemens CoE on 16 May 2019.
10. **Dr. Chitra Babu** had arranged Mr. Kartic Vaidyanathan founder of Play2Learn to visit and demonstrate some solutions which he has developed along with IITM for domains in Electrical, Chemical, Civil and Biotechnology on 14 May 2019. One faculty member from civil and one from Biomedical had attended the demo/presentation along with around 10 faculty members of CSE.
11. **Mr. B. Senthil Kumar** accompanied V-A students for the Industrial Visit (IV) to TVS-Brakes India Ltd., Padi, Chennai on 13 July 2019.

12. **Dr. Chitra Babu and Dr. D. Thenmozhi(IQAC in-charge)** scheduled the external IQAC audit. Dr. Rajesh Khanna from VIT, Chennai audited the academic files under the autonomous regulations 2018 on 18 July 2019 .
13. **Dr. Chitra Babu and Dr. B. Prabavathy** along with three students Sarah, Samanthika and Priya visited Caterpillar office to show the final demo of the consultancy project on "An efficient algorithm for fast processing of quadruple messages". The project has been successfully concluded on 9 July 2019 .
14. **Dr. Chitra Babu** had a meeting with **Mr. Appa Rao, Academic Council member and Mr. B. Srinivasan, Dean, SoM** along with Dr. R. Kanchana, IT Hod Dr. T. Nagarajan, Dr. Srinivasan and Dr. Bhalaji regarding curriculum and assessment on July 2, 2019.
15. **Dr. Chitra Babu** attended the sessions on "Engineering Principles and Practice" and Curriculum Design" by Dr. Ganesh Shankar Samudra, NUS on 23rd July 2019.
16. **Dr. Chitra Babu and Dr. D. Thenmozhi** participated in the "Sing a Song" event that was organized as part of the Teacher's day cultural. They both have won 1st prize in the Quiz event along with Mr. A. Balasubramanian of EEE and Dr. Ganesh Prasad, General Manager, Facilities on 27 July, 2019.
17. **Dr. R. Kanchana** convened the DC meeting for her research scholar G. Manimala to confirm her registration on 19th July 2019.
18. Ms. Josephine Udayabala Gnanaraj has joined as a full time research scholar in the faculty of ICE of AU, under the supervision of **Dr. R. Kanchana**.
19. Ms. Sheerin Sitara.N. has joined as a full time research scholar in the faculty of ICE of AU, under the supervision of **Dr. S. Kavitha**
20. **Dr. S. Kavitha** organized a first DC meeting for her research scholar Ms. Sheerin Sitara.N. for course work approval on 29.07.2019.
21. **Dr. J. Bhuvana** attended two DC meetings at SRM Institute of Science and Technology, Kattankulathur, Chennai on 24 July 2019.
22. **Dr. T. T. Mirnalinee** convened Synopsis approval meeting for the Scholar **Mr. N. Sujaudeen** on 6 July 2019 .
23. **Dr. T. T. Mirnalinee** served as DC member at SRM Institute of Science and Technology, Kattankulathur, Chennai on 22 July 2019.
24. **Dr. V. S. Felix Enigo** along with Akash Kumar Pujari demonstrated a project on Dynamic Reporting Framework at Caterpillar India Pvt Ltd. on 26 July 2019.
25. Synopsis meeting of **Mr. K. R. Sarath Chandran** has been convened by Dr. Premanand V. Chandramani, Professor/ECE on July 15, 2019 at ECE department of SSN college of Engineering.

26. **Dr. B. Bharathi** served as DC member at SSN College of Engineering, Department of ECE, Chennai on 27 July 2019.
27. **Dr. B. Bharathi** served as DC member at SSN College of Engineering, Department of IT, Chennai on 31 July 2019.

TALKS DELIVERED

Dr. D. Thenmozhi delivered a talk on "Unsupervised Learning Networks" in Five Days Faculty Development Training Programme on "Soft Computing techniques and their applications" at Sri Venkateswara College of Engineering, Sriperumbudur on 14 June 2019.



Dr. T. T. Mirnalinee delivered a talk on Image Processing using Deep learning in AICTE sponsored Two weeks FDP on Data Science and Exploratory Data Analysis with R and Python at Sai Ram Engineering College on 19 June 2019.

Dr. A. Chamundeswari attended the "Software Engineering Research in India Update Meeting 2019" as a Speaker on the topic, "Evolution and Challenges in Mobile Forensics". SERI was held on 12th and 13th July, 2019 at the Department of Computer Science and Automation, IISc Bangalore. Sponsored by iSoft and ACM India.



EXTERNAL RECOGNITIONS

1. **Dr. Chitra Babu** has been nominated as one of the ACM-W India executive council members for the term July 1 2019 - June 30 2023 (<https://india.acm.org/acm-w-india>).



L-R (Top)

Arati Dixit, Past ACM-W Chairperson, Gunjan Lal, Tejaswini Apte, Sheila Anand, Founding Chairperson of ACM-W India

L-R (Bottom)

Dr. Heena Timani, Chairperson, ACM-W India, Nutan Limaye, Vice-Chair, ACM-W India, Dr. Chitra Babu

2. Seven departments (EEE, ECE, CSE, IT, Chemical, BME and Mechanical) of our college were given "**Teaching Awards in Engineering**". These awards were given to all the departments of various engineering colleges affiliated to Anna University where the students have come within the top 50 ranks during 2018. The Principal and the heads of the departments received the awards at Arignar Anna Arangam, Chetpet, Chennai on July 23, 2019 evening. These awards were given jointly by Staffordshire University, UK and an education consultant organization named, Education Matters.



PAPER REVIEWS

1. **Dr. D. Thenmozhi** reviewed a paper titled "Context-based Translation for the Out Of Vocabulary Words Applied to Hindi-English Cross-Lingual Information Retrieval" for IETE Technical Review.
2. **Dr. D. Thenmozhi** reviewed a chapter titled "Semantic Similarity Using Register Linear Question Classification (RLQC) for Question Classification" for the book, Neural Networks for Natural Language Processing.
3. **Dr. D. Venkata Vara Prasad** reviewed a paper titled "Experimenting the physical-virtual characteristics of fog network based computing using simulation tools" for Wireless Networks Journal.
4. **Mr. K. R. Sarath Chandran** reviewed a paper titled "EV CHARGING STATION LOCATOR WITH SLOT BOOKING SYSTEM" for the Second International Conference on Power and Embedded Drive Control - ICPEDC - 2019, organized by Dept. of EEE, SSNCE
5. **Ms. Y. V. Lokeswari** reviewed the following two chapters for the book entitled "Nature Inspired Computing for Data Science" to be published by Springer.
 - a. A Mathematical Model for Medium-Term Home Health Care Planning Problem with Flexible Depart Way for Caregivers
 - b. Application of Genetic Algorithms for Unit Commitment and Economic Dispatch Problems in microgrids
6. **Dr. R. Priyadharsini** reviewed a research paper titled "Secure and Robust Image Hashing Scheme using Gaussian Pyramid" for Journal of Ambient Intelligence and Humanized Computing, Springer
7. **Dr. B. Bharathi** reviewed the following papers for 20th Annual Conference of the International Speech Communication Association INTERSPEECH 2019
 - a. Speech Emotion Recognition with Hybrid Neural Network
 - b. Audio Tagging with Compact Feedforward Sequential Memory Network and Audio-to-Audio Ratio Based Data Augmentation
 - c. Locality-constrained Linear Coding based Fused Visual Features for Robust Acoustic Event Classification
 - d. An End-to-End Audio Classification System based on Raw Waveforms and Mix-Training Strategy
 - e. Multi-level Adaptive Speech Activity Detector for Speech in Naturalistic Environments
 - f. The 2019 Inaugural Fearless Steps Challenge: A Giant Leap for Naturalistic Audio

8. **Dr. G. Raghuraman** reviewed the paper for International Conference on Computational Intelligence and Knowledge Economy (ICCIKE 2019), A Novel Framework for Collecting and Analysing Offline Transaction Data for Strategic Planning.
9. **Ms. S. V. Jansi Rani** reviewed a research paper titled, "Receiver-side TCP Countermeasure for cellular based vehicular networks", IET Communications.
10. **Dr. P. Mirunalini** has reviewed a paper titled, "Multimodal medical image fusion using non-subsampled shearlet transform, sum of Gaussian weighted pixel intensities and smallest uni-value segment assimilating nucleus" for IET Image Processing.

WORKSHOPS ATTENDED

1. **B. Prabavathy, S. Angel Deborah, K. Lekshmi, M. Saritha, A. Beulah, S. Lakshmi Priya, K. R. Sarath Chandran, N. Sujaudeen, V. Balasubramanian, and H. Shahul Hamead** have attended Effective Mentoring workshop conducted in SSN CE on 11th June 2019.
2. **Y. V. Lokeswari** attended six days Faculty Development Training Programme on "GE8151 - Problem Solving and Python Programming" during June 10th to 15th, 2019 which was co-sponsored by Anna University conducted at Department of CSE, SSNCE.
3. **Dr. G. Raghuraman and Ms. A. Beulah** attended the FDP on "Change in Learning Approach" organized by CTS, Siruseri on July 5, 2019.
4. **Dr. Chitra Babu, Dr. R. S. Milton, Dr. D.V.V.Prasad, Dr. R.Kanchana, Dr. J. Bhuvana, Dr. D. Thenmozhi, Dr. K. Madheswari, Dr. R. Priyadharshini and Ms. S. Rajalakshmi** attended a workshop on "Accreditation" by Dr. Ganesh Shankar Samudra, Professor, NUS, Singapore at SSN CE on 22nd July 2019.

SANCTIONED PROJECT PROPOSALS

The project titled "Development of fusion algorithms for remotely sensed satellite images in cartographic applications" submitted by **PI: Dr. N. Venkateswaran, Prof/ECE, CO-PI: Dr. K. Madheswari, ASP/CSE**, received external funding by ISRO (Rs.14.29 Lakhs) for the period of two years.

FACULTY PUBLICATIONS / PRESENTATIONS

1. **Ms. Rajalakshmi S, Ms. Angel Deborah S, Dr. R. S. Milton and Dr. Mirnalinee T T**, published a paper titled "SSN-SPARKS at SemEval-2019 Task 9: Mining Suggestions from Online Reviews using Deep Learning Techniques on Augmented Data", in Proceedings of the 13th International Workshop on Semantic Evaluation (SemEval2019), pages 1233-1237, Minneapolis, USA, June 6-7, 2019, published by Association for Computational Linguistics.
2. **Logesh Balasubramanian, Harshini Sathish Kumar, Geetika Bandlamudi, Dyaneswaran Sivasankaran, Ms. Rajalakshmi S, Ms. Angel Deborah S, Dr. R. S. Milton, Dr. T. T. Mirnalinee**, published a paper titled "TECHSSN at SemEval-2019 Task 6: Identifying and Categorizing Offensive Language in Tweets using Deep Neural Networks", in Proceedings of the 13th International Workshop on Semantic Evaluation (SemEval2019), pages 749-754, Minneapolis, USA, June 6-7, 2019, published by Association for Computational Linguistics.
3. **B. Senthil Kumar, D. Thenmozhi, Chandrabose Aravindan and Srinethe Sharavanan**, "SSN_NLP at SemEval-2019 Task 3: Contextual Emotion Identification from Textual Conversation using Seq2Seq Deep Neural Network", Proceedings of the 13th International Workshop on Semantic Evaluation, Jun 2019, Minneapolis, Minnesota, USA, Association for Computational Linguistics, pp. 318 – 323
4. **D. Thenmozhi, B. Senthil Kumar, Srinethe Sharavanan and Chandrabose Aravindan** , "SSN_NLP at SemEval-2019 Task 6: Offensive Language Identification in Social Media using Traditional and Deep Machine Learning Approaches", Proceedings of the 13th International Workshop on Semantic Evaluation, Jun 2019, Minneapolis, Minnesota, USA, Association for Computational Linguistics, pp. 739 – 744
5. **Dr. V.S. Felix Enigo along Mohan Sha S, Nikhil S , Nitin K R** published a paper titled "Smart Mirror: A device for Heterogeneous IoT Services" in Springer Conference COMET2K19, March 22-23, 2019.
6. **Kavitha S, Mohanavalli S and Bharathi B**, published a paper titled as "Optimized bilevel classifier for brain tumor type and grade discrimination using evolutionary fuzzy computing", in Turkish Journal of Electrical Engineering & Computer Sciences, (2019) 27: 1704 - 1718, doi:10.3906/elk-1804-13. IF:0.697
7. The paper titled, "Optimized Real Time Drowsy Driver Warning System using Raspberry Pi" authored by **Almah Roshni A, Balaji J, Kaushik D and Sarath Chandran K. R** was presented in the 2nd International Conference on Computer Networks and Inventive Communication Technologies [ICCNCT 2019 - Springer], conducted by RVS Technical campus, Coimbatore during 23-24 May 2019.

8. **S. Kavitha, S. Mohanavalli and B. Bharathi**, published a paper titled as "Predicting Learning Behaviour of Online Course Learners' using Hybrid Deep Learning Model", in IEEE 6th International Conference on MOOCs, Technology and Innovation in Education, MITE 2018 at MLR Institute of Technology, Hyderabad, 29-30 November 2018, pp.98-102. DOI: 10.1109/MITE.2018.8747136
9. **Chamundeswari Arumugam, Varsha Bhargavi Dwarakanathan, S. Gnanamary, Vishalraj Natarajan Neyveli, Rohit Kanakuppaliyalil Ramesh, Yeshwanthraa Kandhavel, and Sadhanandhan Balakrishnan** published a paper titled, "Prediction of SQL Injection Attacks in Web Applications", 19th International Conference Computational Science and Its Applications - ICCSA 2019, Saint Petersburg, Russia, July 1-4, 2019. Proceeding published in Springer Lecture Notes in Computer Science 11622.
10. **Kavitha S, Nandhinee P R, Harshana S, Jahnavi Srividya S and Harrinei K**, published a paper titled as "ImageCLEF 2019: A 2D Convolutional Neural Network Approach for Severity Scoring of Lung Tuberculosis using CT Images", CLEF 2019, <http://ceur-ws.org/Vol-2380/>.
11. **D. Thenmozhi, Chandrabose Aravindan, Abishek Shyamsunder, Adithya Vishwanathan and Akash Kumar Pujari**, "Extracting Protests from News using LSTM Models with different Attention Mechanisms", CLEF 2019, <http://ceur-ws.org/Vol-2380/>.
12. **Akshaya Ranganathan, Haritha A, Thenmozhi D, Chandrabose Aravindan**, "Early detection of anorexia using RNN-LSTM and SVM classifiers", CLEF 2019, <http://ceur-ws.org/Vol-2380/>.
13. **S. Kayalvizhi, D. Thenmozhi and Chandrabose Aravindan**, "Deep Learning Approach for Semantic Indexing of Animal Experiments Summaries in German Language", CLEF 2019, <http://ceur-ws.org/Vol-2380/>.
14. **Nanda H Krishna, Praveen Kumar R, Ram Kaushik R, Mirunalini P, Aravindan Chandrabose and Jaisakthi S M**, have participated in the task conducted by GeoLifeCLEF 2019 and published the working notes titled , " Species Recommendation using Machine Learning - GeoLifeCLEF 2019" Working Notes of CLEF 2019,<http://ceur-ws.org/Vol-2380/>- .
15. **Jaisakthi S M, Mirunalini Palaniappan and Aravindan Chandrabose**, have participated in the task conducted by ImageCLEF? 2019 and published a working notes titled, "Coral Reef Annotation and Localization using Faster R-CNN", and is available <http://ceur-ws.org/Vol-2380/>-
16. **Dr. K. Madheswari and Dr. N. Venkateswaran** published a paper titled "Particle swarm optimisation aided weighted averaging fusion strategy for CT and MRI medical images" International Journal of Biomedical Engineering and Technology, Vol. 31, No. 3, 2019, PP.278-291

EFFECTIVE MENTORING WORKSHOP

The Effective mentoring workshop was conducted during 11th June, 2019. This workshop was conducted by Prof. G. Guru Bharathi and Prof. M. Kannan, from M.S. Chellamuthu Institute of Mental Health & Rehabilitation, Madurai. The attendees were divided into groups of 7 and each group was given a topic related to the effective mentoring process. Each group was to discuss and deliver what they thought about the topic that was given to them. This discussion helped everyone to understand other's perspective on what should be and should not be done during mentoring. At the end of this exercise, Prof. Gurubharathi discussed his experience on how to make the mentoring sessions much more useful for the mentor and the mentee. Points related to mentoring process, challenges in mentoring, outcomes of mentoring, roles of mentoring, assets of mentoring, qualities of mentoring and trust-building behaviours of mentoring were discussed by him.

Mentoring is a process to make the mentee resilient. It is necessary for mentors to conduct GROW based mentoring where G, R, O and W stands for Goal, Reality, Options and Way forward. That is mentor should make the mentees to choose the option to be executed to reach their goals in the recent trend. Outcome of mentoring relies on mentor, mentee and the trustworthiness of the relation as they constitute mentoring process. Mentor should play different roles (friend, parent, to name a few) as and when required for the mentees. Mentor should be approachable, trustworthy, competent and patient enough to provide effective mentoring. Mentor should enable their mentees to identify their own assets and encourage them to nurture. There was also discussion about the formula for happiness of an individual. It is as follows: $H=S+C+V$, where S represents Set condition, C represents current context and V represents voluntary activity.

A research has been conducted to see the contribution of each component of H. In which, S contributes to 50% that comes from genetic traits. This quotient cannot be increased as it is inherited. While V contributes to 40%, the current context of our life only contributes to 10%. However, always any person tends to concentrate on the current context that will lead to only maximum of 10%. Hence, it is necessary that anyone should identify their voluntary activity of their own in order to increase the happiness as it contributes to more percentage.

The participants from our department are: B. Prabavathy, S. Angel Deborah, K. Lekshmi, M. Saritha, A. Beulah, S. Lakshmi Priya, K. R. Sarath Chandran, N. Sujadeen, V. Balasubramanian, H. Shahul Hamead

Dr. B. Prabavathy
Ms. S. Lakshmi Priya
Ms. S. Angel Deborah

FDTP - PROBLEM SOLVING AND PYTHON PROGRAMMING

Anna University co-sponsored Six-day faculty development training Programme on “GE8151 – Problem solving and Python programming” was conducted by Department of Computer Science and Engineering, SSN College of Engineering, Kalavakkam, Chennai during June 10-15, 2019. The Programme was organized by Dr. R. Priyadharsini, Associate Professor and Ms. S. Rajalakshmi, Assistant Professor of Department of Computer Science and Engineering.

The program was meant for the faculty members of Anna university affiliated colleges. A total of 28 faculty members from different engineering colleges attended the training program. This six days Programme consisted of 4 sessions per day and a total of 24 sessions which includes lecture hours, tutorials, and hands on sessions. Subject experts were identified from various eminent institutions.

After the formal registration on June 10th, Dr. Chitra Babu, HOD, Department of CSE welcomed the gathering. The programme was inaugurated by Prof. Madhavan Mukund, Deputy Director and Dean of Studies at Chennai Mathematical Institute. He handled the first session on “Algorithms and Programming”. The second lecture on “Algorithmic problem solving” was handled by Dr. R. S. Milton, Professor, Department of CSE, SSN College of Engineering. The third and fourth sessions on “Case studies - Illustrative problems – Algorithmic problem solving” were handled by Dr. Sreedevi, HOD, Department of CSE, Sri Sairam Institute of Technology.





On the second day of the FDTP, “Introduction to Python Programming” was delivered by Dr. R. Rajalakshmi, Associate professor, VIT, Chennai. The hands-on session on “Basic Python programs, Conditional and Iterative statements” was given by Mr. K. Sriraghav, Dell, Chennai. The first session of the third day started with the talk on “Fruitful functions” by Dr. Renuka Devi, Associate Professor, VIT, Chennai. The second session on “String concepts in Python” was handled by Prof. Madhavan Mukund. The afternoon Hands-on sessions on “Fruitful functions and strings” were handled by Ms. V. Narmadha, Assistant Professor, Department of IT, Sri Sairam Engineering College.

The fourth day, forenoon sessions on “Lists, Tuples and Dictionary” were delivered by Prof. Madhavan Mukund. The hands-on sessions on “Lists, Tuples and Dictionary” were given by Dr. R. Jayabhaduri, Associate Professor, SVCE during the fourth day afternoon.

The topics on “Files and exception handling” was engaged by Ms. S. Lakshmi priya, Assistant Professor, Department of CSE, SSNCE during the first session on fifth day. Dr. T.T. Mirnalinee, Professor, Department of CSE, SSNCE gave a new perception to “Machine learning using Python” topic. The last session of the fifth day was handled by Mr. D. Roopeshwar, Motorq, Chennai. He elaborated on the topics “Modules, Packages and Pygame”.



On the last day, few tasks were conducted for participants. The tasks include Quiz for 25 marks, Python programs for 50 marks and an application development for 25 marks. The participants were evaluated for 100 marks. The quiz answers were discussed by the coordinators and the Programme successfully ended with the valedictory function.



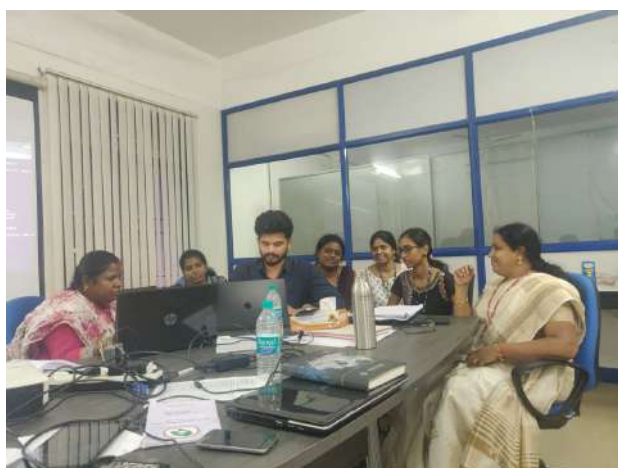
Dr. R. Priyadarshini

Ms. S. Rajalakshmi

SETTING UP OF DATA LAKE, DATA PIPELINE AND ETL WORKFLOW

Dr. R. Kanchana organized a workshop on "Setting up of Data Lake, Data Pipeline and ETL Workflow" during 24th -25th May 2019 under the BIRAC funded project on NAGARIK ROG PRATIRAKSHAK: UNIFIED SMART IMMUNIZATION COVERAGE MONITORING AND ANALYSIS (UniSICMA). The speaker was Mr. Sasikumar Venkatesh, Software Engineer, Walmart Labs India, Bangalore. The topics covered were Setting up Datalake with HDFS and Hive, File formats (ORC, Parquet), Incremental Data Processing, Hands on and Design methods, Data Pipeline and ETL workflow automation with Apache Airflow, Query Processing for Reporting vs Ad-hoc data processing and Real-time Data Pipeline with Spark Streaming or Storm.

The participants were JRFs working under NRP-UniSICMA (BIRAC funded research project) at SSN as well as IIITU, HP, Faculty members and students associated with the project at IIITU, HP



Dr. R. Kanchana
Asso/Prof, CSE

BIG DATA AND DATA LAKES ON THE CLOUD

Dr. R. Kanchana and the JRFs under BIRAC project attended the talk on "Big Data and Data Lakes on the Cloud" on 31st May 2019. The speaker was Mr. M.G. Thiruvalluvan VP (Engineering), Aqfer Inc., IIT Madras Research Park, Chennai and the venue was IMSC, Taramani, Chennai. The event was organized by IEEE CS, ACM, IEEE TEMS, and CSI. The speaker covered the following topics very interestingly. Difference between datalake and warehouse, Data ingestion, Challenges for data lake, Big data on Cloud, File formats, Streaming big data, Tools for programming and analytics



WORKSHOP ON IMMUNIZATION SOFTWARE SYSTEMS

Dr. R. Kanchana attended the Workshop on Immunization Software Systems during 10th May 2019 and 13th May 2019, at SIHFW Parimahal, Kasumpti, Shimla, Himachal Pradesh. It was conducted by OSD(RCH), Shanti Bhawan, Phase 3, Sector 6 New Shimla, Shimla 171009 Himachal Pradesh, as a part of knowledge transfer for the BIRAC funded project on NAGARIK ROG PRATIRAKSHAK: UNIFIED SMART IMMUNIZATION COVERAGE MONITORING AND ANALYSIS (UniSICMA).

Dr. Sonika Senior Project Officer, UNDP, NHM, Shimla, welcomed the teams of JRFS, faculty members and students from SSNCE and IITU. She also introduced NHM-HP team. Prof. Selvakumar, PI, UniSICMA Project, Director, IITU, HP introduced the research scholars and faculty members of the UniSICMA team. Dr. Kanchana PI, UniSICMA Project, SSNCE briefed the objectives of the research project titled NAGARIK ROG PRATIRAKSHAK: UNIFIED SMART IMMUNIZATION COVERAGE MONITORING AND ANALYSIS (UniSICMA) funded by BIRAC. Shri. Manmohan Sharma, HAS Mission Director, National Health Mission, Shimla, HP appreciated the efforts of the team and explained the major difficulties in the existing immunization Software Systems. Shri. Devender Sen Consultant- MIS gave a presentation on E-Health initiatives under National Health Mission. He explained the workflow of ANMOL, MCTS, RCH systems and showed different reports generated by these systems. He also explained the process of data acquisition for immunization. Dr. Sonika explained the workflow of eVin system



The sessions were interactive and the discussion were fruitful to understand the processes and workflows of immunization. Subsequently, there was a field visit to Civil Hospital, Sujanpur Tesil, Hamirpur district, HP on 13th May, 2019. The infrastructure of civil hospital, Sujanpur was visited. Shri. Joginder Singh Supervisor, Civil Hospital, Sujanpur Tesil, Hamirpur, HP briefed about the hierarchy of Hamirpur district with its sub centres, primary health centres, community health centres, etc.

The various registers and formats used by ANMs for data acquisition and vaccine stock were seen and understood. Shri. Sachin Soni BMIS Operator, Civil Hospital, Sujanpur Tesil, presented a demo of RCH system and showed the workflow. Routine immunization session at Karot, Sujanpur Tesil, Hamirpur district was visited and the process of immunization and data acquisition were observed.

Dr. R. Kanchana
Asso/Prof

NRP-UNISICMA - KICK-OFF MEETING

Dr. R. Kanchana as the PI of NRP-UniSICMA project (externally funded research project) attended a Kick-off meeting on 10th April, 2019, organized by BIRAC at New Delhi.

The program involves immunization data to be analysed from various initiatives of the Government of India such as MCTS, eVIN, HMIS etc. Hence, the kick-off meeting was organized to interact with all the stakeholders of the project viz., Indian Council of Medical Research (ICMR), Ministry of Health & Family Welfare (MoHFW), Department of Biotechnology (DBT) and the Bill & Melinda Gates Foundation (BMGF) and the grantees.

Also, mentors (Project Monitoring Committee members) were assigned to individual projects to review the progress and project milestones. The kick-off meeting served to facilitate conversations between the stakeholders, mentors and the grantees for effective implementation of the program to achieve the desired results.

FDP ON NEXT GENERATION SEQUENCING (NGS) AND DATA ANALYSIS

Ms. Y. V. Lokeswari AP/ CSE and Ms. R. Athilakshmi (Research Scholar), have attended 6-days Faculty Development Program on Next Generation Sequencing and Data Analysis through Hands-on Experience at National Institute of Technology Warangal, Telangana Department of Biotechnology, during 6-May-2019 to 11-May 2019. The sessions and topics covered in the FDP are as follows.

Day 1

The FDP started with inauguration session by E & ICT Academy Chief Investigator Prof. R. B. V. Subramanyam. The first session was on Evolution of DNA Sequencing and their biological applications by Prof. T. Thanga Raj Centre for Cellular and Molecular Biology (CCMD) Hyderabad. He gave overview of different systems used to do prepare NGS data like Nova Seq, HiSeq, Roche 454, SOLiD, PacBio and Illumina. NGS technology is applicable in investigating Human population history, Reconstructing the origin of Andaman & Nicobar Island, analysis of Cardiomyopathy, genetic causes of infertility.

The second session was about NGS Analysis in Cancer by Dr. Muralidharan Bashyam, Center for DNA Fingerprinting and Diagnostics (CDFD) Hyderabad. He briefed about the Whole Genome Sequencing that reveals novel rectal cancer genes.

Third session was on Ion Torrent Library workflow by Mr. Prathap Naidu from ThermoFisher Scientific. He explained about sample preparation, clustering, library and template preparation using Ion Gene Studio s5 system and applications in the field of RNA Sequence analysis, Microbial, Viral, Metagenomic and Targeted Sequencing. Ion Reporter is a software based tool which is a freeware and it helps in analyzing the Next Generation Sequencing (NGS) data generated from Ion Torrent machine. Session four was handled by Mr. Prathap Naidu, about Real-Time PCR system using Quant Studio.

Day 2:

Mr. Prathap Naidu demonstrated plug & play Reagents on Ion Gene Studio s5 System. In second session Dr. K Rajender Rao from National Institute of Nutrition (NIN) Hyderabad explained about DNA Genome analysis techniques and applications. The genetic changes in DNA could be identified from the following markers. Morphological, Cytological, DNA, PCR, RFLD, RAPD, SCAR, AFLP, SSR, and VNTR markers. DNA sequencing can be done in

one of the two ways. Sanger Chain Termination and Hierarchical & Shotgun sequences. Post lunch there was a demonstration for Real Time PCR and Biochemistry analyzer by Mr. Prathap Naidu and Mr. Venkatesh.

Day 3

First session was about Introduction to Next Generation Sequencing, overview of biological databases and mining of data from databases handled by Dr. Shyam, NIT Warangal. Mr. Anubhav Sinha from Illumina explained about the workflow of NGS on Illumina platform and post lunch there was a demonstration and hands-on experience in using Illumina machine.

Day 4

High Throughput DNA sequencing was explained by Dr. Shyam NIT Warangal. In the second session Mr. Harshe from Ion Torrent described about NGS data analysis through Ion Torrent tools. The Ion Torrent Informatics tools such as Ion AmpliSeq, Ion Torrent Suite software and Ion Reporter software were demonstrated by Mr. Harshe. He explained about different step involved in generation of NGS data and generation of data formats from analysis. This session was so interactive and it is more on to Bioinformatics tools available to analyze NGS data. Post lunch, there was a hand-on experience on registration, installation and usage of Ion Reporter software.

Day 5

Dr. Madhusudan Reddy, Scientist from Center for DNA Fingerprinting and Diagnostics (CDFD) Hyderabad explained about DNA profiling and Analysis. This session was quite interesting with details about application of DNA analysis in criminal investigations. It is also used in Forensic human identification, sexual assault and killing women, identifying criminal involved in crime, finding out parental relationship using DNA testing, cross matching of DNA profiles to identify a person during bomb blast or flight crashes and so. This DNA profiling also helps in identifying the culprit involved in cold cases (cases that were closed / in freeze earlier).

Post lunch there was a session about Metagenomic analysis workflow by Dr. Rama Raju NIT Warangal. Mr. Pavan Kumar from PacBio Hyderabad, Spincotech explained about NGS analysis using PacBio tool. HE introduced about SMRT technology for Whole Genome Sequencing (WGS), RNA sequencing, Complex population, Targeted sequencing and Epigenetics. HLA sequencing could be applied in Transplantation, Immuno and Cancer research. Sequel II and SMRT are the softwares used to do sequence analysis.

Day 6

There was a test on NGS applications and analysis tools on last day first session. The question paper was a descriptive type where there were 25 questions to answer. Later, Dr. Ashwin Dalal (MBBS), Head Diagnostic Division from CDFD Hyderabad discussed about Identification of novel genes for single gene disorder in humans. NGS analysis can be done using whole genome sequencing, targeted resequencing and exome sequencing.

The following are the take aways from the lecture.

BHLHA9 is the gene responsible for Complex Camptodactyl (An unusual hand malformation). BHLHA9 duplication leads to Ectrodactyly (Split hand / Foot Malformation) BHLHA9 deletion will lead to (MSSD) Mesoaxial Synostotic Syndactyly with Phalangeal Reduction (4 fingers in hand). Mental retardation, Ptosis and Polydactyly could be caused by the genes such as ARMC9, UGT1A& and ZFPM1. AIMP2 is the major gene causing Neurodegenerative disorder. Finally there were general discussions about diseases such as Cancer, Diabetics, Thalassemia and Down Syndrome. Doctor mentioned that it is difficult to find the cause, but they always try to prevent the disease by studying from the affected genes. Post lunch, there was a bioinformatics session by Dr. Shyam, NIT Warangal, explaining about different data formats available in analyzing NGS data. Finally there was a hand-on session on CLC Genomic Workbench and Blast2Go tools for analysis of NGS data in FASTQ format.



Ms. Y. V. Lokeswari
Assistant Professor / CSE

FDP - CHANGE IN LEARNING APPROACH

Faculty Development Program on "Change in Learning Approach" organized by CTS, Sipcot IT Park, Chennai, on July 5, 2019. Nearly 70 faculty members from 15 engineering colleges in Chennai region participated in this FDP on 5th July, 2019 by Cognizant.

The First session was handled by Mr. Saransh Agarwal, Head - Learning Solutions, Culture and Communication, Cognizant Academy, Chennai. The topic was "Creating a culture of Learning". The session started with a simple quiz using Kahoot! App. He was engaging faculty members through a game format to introduce key discussion topics as well as judge their interest area. Discussion panned from development in adult learning - Behaviorism model of 19th century & Constructivism in 70's to need of Meta-cognitivism for current set of professionals.

Faculty members were explained about the concepts like Self-learning and development, Lifelong learning and their critical role of a coach to develop 5 key habits of highly effective learners such as: Learning Anywhere and from Anyone, Allowing Yourself To Be Curious, Helping Others Be Curious, Identifying Fixed Mindset, Developing Your & Others' Growth Mindsets.

"Art of developing the growth mindset will have the impact in a student and subsequently a professional" should be made clear to the student by the Faculty. With the above quote he



Saransh delivering session for the Faculties

also added that, one of the key skills to develop is the art of receiving and providing feedback (criticism, developmental or praise). It is important to acknowledge and embrace imperfections and view them as opportunities. Having a growth mindset means relishing opportunities for self-improvement. It may mean replacing the word “failing” with the word “learning.” It means starting to accept that when one makes a mistake or falls short of a goal, they have not failed but they have learned. In that learning there’s the growth sought.

He pointed out the importance of students understanding the difference between the growth and fixed mindsets. The latter has an urgency to prove oneself repeatedly, where criticism is seen as an attack on character and capabilities. The hallmark of the growth mindset is the passion for sticking with it, especially when things are not going too well. “Human” skills such as creativity, originality and initiative, critical thinking, emotional intelligence, social influence etc. are also set to see particular increase in demand, relative to their current prominence today.

After refreshments we had the activity session for about 30 minutes showcasing the importance of teamwork, understanding, Improvements, etc. We were introduced with the GenC program and the upcoming Big Idea Challenge 2019 by Cognizant for college students. We had a Photo session with the Cognizant Academy team. From our department myself and Ms. A. Beulah attended the workshop.

Dr. G. Raghuraman,
Asso/Prof



VIVA VOCE

Hi.....Very happy moment. It is pleasure to share my experience with you all.

The day of my viva is a haunting dot in my career. With lot of preparations, I had presented my research work on “Improving the performance of Transmission Control Protocol (TCP) in Wireless networks” under the valuable guidance of my supervisor Dr.P.Narayanasamy at PSG College of Technology, Coimbatore. After an hour, I had answered to the rapid fire questions posted by the Indian examiner Dr.S.Nickolas, Professor, NIT, Trichy and the subject expert Dr.P.Shanthi Thilagam, Prof, NIT, Surathkal and successfully defended the viva voce examination on June 27th 2019.

I would like to thank the almighty, my Lord Jesus Christ for being my strength and without whom nothing is possible. I would like to convey my gratitude to my supervisor, Dr. P.Narayanasamy, Prof, EEE, PSG Tech, Coimbatore (Former Professor/IST/CEG), who is a very kind, approachable, polite person and down to earth. He encouraged me and given time for me to recover during my hard phases. I thank my parents, husband, children, SSN management, our principal Dr.S.Salivahanan, HOD Dr.Chitra Babu, colleagues and friends.

As most of you have encountered, I am not an exception to face hardships in this journey. But we need to have perseverance in doing PhD and that too as a part time fellow. It was difficult and challenging to have a work-life-research balance. I hereby wish all the scholars of SSN to have successful endeavour in your research arena.



Ms. S. V. Jansi Rani
Assistant Professor, CSE

VIVA VOCE

I successfully defended my thesis on "Parallelized Computational Methods for Improved Feature Selection and Classification of Cancer Types" under the supervision of Dr. R. Rajavel, Associate Professor, Department of ECE, SSN College of Engineering. The public Viva-Voce Examination was conducted on 24.07.2019 (Wednesday) in ECE Seminar Hall, in the presence of Dr. Latha Parthiban, Associate Professor, Department of CSE, Pondicherry University and Dr. Palanivel, Professor, Annamalai University, Chidambaram, as subject expert members.

I would like to express my gratitude to Dr. Shomona Gracia Jacob for being the greatest pillar behind this success. My sincere thanks goes to my doctoral committee members Dr. P. Anandha Kumar, Dr. S. Shridhar, Dr. V. Vijayakumar and Dr. S. Saraswathi for their valuable inputs and suggestions during the progress meetings. I would also like to thank SSN management, HoD mam, my colleagues, friends and family members for their support in reaching the milestone.

Y. V. Lokeswari
AP/CSE



CSPATHSHALA WORKSHOP FOR SCHOOL TEACHERS ON COMPUTATIONAL THINKING

The Computational Thinking Workshop for school teachers was held on 26th of July at the Seminar hall of Department of CSE, SSN. It was jointly organized by Chennai Mathematical Institute, Institute of Mathematical Sciences, CSpAthshala, ACM India Chennai Professional Chapter, ACM and ACM-W student chapters. It witnessed five speakers; Dr. Madhavan Mukund, Deputy Director and Dean of Studies, CMI, Dr. R Ramanujam, Professor, Institute of Mathematical Sciences (IMSc), Ms. Sonia Garcha, ACM CSpAthshala, Dr. Chitra Babu, Head of the department of Computer Science and Engineering, SSN and Ms. S. Angel Deborah, Assistant Professor in the department of Computer Science and Engineering, SSN.

The event began with a brief introduction to the ACM CSpAthshala initiative by Prof. Madhavan Mukund from CMI. This was followed by a mind-blowing session on thinking about Computational Thinking by Prof. R. Ramanujam where he introduced many fascinating alternatives to teach Computer Science and posed interesting logical puzzles. The session that followed was conducted by Ms. Sonia Garcha who used a magic trick to teach error correcting codes and parity bits. It was followed by a session on SudoKu solving by Dr. Chitra Babu which demonstrated the importance of a systematic and understandable teaching method while preserving individuality. Graph based problems and implementation of the new CT curriculum were discussed. After breaking for lunch, the afternoon session began with an interactive session by Ms. Angel Deborah. Volunteers were blindfolded and were asked to pick up cups on the floor with the aid of instructions from their colleagues.. This exercise illustrated the importance of unambiguous and clear algorithms. On the whole, it was a very engaging and innovative workshop with many tips on making the subject interesting. It ended with a discussion about the available resources on the CSpAthshala website to aid teachers towards inspiring students.

Sadhana Smruthi S
III year CSE



INDUSTRIAL VISIT TO BRAKES INDIA PRIVATE LIMITED

Brakes India is a leading brake manufacturing company with clients all over India. Some of their reputed clients are Maruthi, Honda and Hyundai. The Industry visit was scheduled on 13th July, 2019, 10:00am to 12:00pm. All the students reached the site well before the scheduled time. Mr. B. Senthil Kumar was the faculty in-charge for the Industry Visit. After a quick attendance by the incharge faculty we are separated into two groups and the manager of the Brakes India Ltd., gave a welcome speech and introduced us to their employees.

After a brief introduction of what they do in the factory, we started to walk into each department to see what actually happens there. The production is divided logically into three stages, assembly and fabrication, testing and quality management and, packaging and exporting. In the assembly area, we were introduced to an Engineer who explained to us how brakes are assembled and what are the protocols followed by the industry in producing each brake. They also demonstrated to us how a brake actually functions. In the assembly area there are written notes all over the place, explaining the employees and visitors what the particular machine does. The industry follows a systematic procedure in production unit and adopts a wonderful real time scheduling policy in order to achieve a good yield. In the testing unit, three to five brakes are randomly selected from each bunch and tested in various aspects to ensure the long lasting nature of the brakes. Later all the brakes are subjected to test for any form of cracks or deformities using ultrasound. After all such rigorous testing, the brakes are marked qualified for packaging and export. After an informative tour, we were provided with tea and snacks before we left the industry. It was a unique and memorable experience.

Praveen Kumar R
III year CSE



Brakes / Foundry / Polymer



With over 50 years of history and rich experience behind it, Brakes India Private Limited as part of the six billion dollar TVS group is getting future ready for the opportunities ahead. Established in 1962 as a joint venture between the TVS Group and Lucas Industries Limited U.K (100% subsidiary of ZF TRW), Brakes India has grown to become the largest Brake system supplier in India today. [Know more...](#)

ANGELHACK - VIRTUAL GLOBAL HACK

The AngelHack Global Hackathon is a series of in-person events across various cities and ends with a global virtual hackathon where teams from all over the world can submit their projects and participate.

This was the first edition of the Global Virtual Hackathon and there were 3 main challenges at the event. The AngelHack prize, the AWS Challenge and the IBM Challenge. We focused on the AngelHack prize and the AWS Challenge.

The event ran for a month and we had to hand in our submissions on July 1st. The event had webinars teaching us how to pitch our product and such. In this duration we built an app that uses a novel labelling system to detect pills from pill bottles and reminds visually impaired and old patients to have their medicines at the right time. The app was connected with Alexa and we also implemented a feature for the patient to video call the doctor when needed. In this video call, we implemented a feature where the doctor gets information about the patients heartbeat just from the patients face, replicating a CSAIL MIT paper for the same.

The AngelHack prize consisted of 1 grand prize and regional prizes, the regions being China/EPAC, MENA region, The Americas and the Indian Subcontinent.

We are proud to say that we placed first in the Indian Subcontinent.

We were also able to bag the Runner Up position and the AWS Global Challenge as we built an app that was end to end connected with Amazon Alexa and used various other Amazon services. As part of this award, we received 4000\$ AWS credit and 5 Limited Edition Mechanical Keyboards from AWS.

We also received an invite to join the Hackcelerator program, where we will be

receiving 1:1 mentorship from Silicon Valley Gurus and other businessmen, to take our project to the next level and possibly into implementation.



Srinath V (IT-B)

Sainath Prasanna (CSE-C)

Rohit Midha (CSE-C)

Shraddha Mohan (CSE-C)

Anam Saatvik Reddy (IT-A)

INTERNSHIPS



1. Kalaivani Kumaran
2. Anish Badri R.S
3. Vishal A



1. Shivani K
2. Yamini L



1. Adithya Viswanathan



1. Anand S
2. Tarun Ganesh K



1. Aishvarya S
2. Chandrashekar M
3. Prashant Kumar Dixit



1. Snigdha V
2. Nafisa Saida H



1. Edison M
2. Haritha A
3. Ashwin P S
4. Akshaya R



1. Abhishek T S
2. Akhilesh M



1. Eshwar Krishnan S
2. Antony Mevin Fernando
3. Kaushik P
4. Mohammed Rizwan S



1. Tejas Sivan
2. VenkatRaman V
3. Sowmya K



1. Rohit K R
2. Vaibhav Nigam



1. Ajith Mani V



1. Susheel P S



1. Sarah Mathew



1. Samantika S



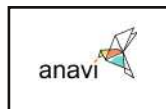
1. Shreyas S



1. Hariny G



1. Rebecca Sharon J



1. Ramanarayanan



1. Malavika C



1. Aishwarya R



1. Logesh B



1. Priya Anna Christall
2. Kevin Shelton



1. Anirudh Shenoy

INTERNSHIP @ HINDUSTAN UNILEVER LTD

We interned at Hindustan Unilever Ltd for 2 months. The internship offer was provided to us after we had won the 3rd Edition of Smart India Hackathon(SIH).

During the internship, we were involved in automating the Reverse Logistics of goods from retailers to the manufacturer. The main objective was to record and track the movement of goods and provide analytics from the data collected.

The first phase of the internship was spent in understanding the business processes. This involved interacting with the distributors, retailers and understanding the difficulties and complexities in the existing process. It was an interesting phase where we got a first-person experience of how businesses work in the real world.

The next phase involved identifying the areas that could be digitalized and automated and coming up with ideas to incorporate them into existing software practically and feasibly. This was followed development of prototypes that involved various Mobile and Web Applications. The prototypes were then tested extensively and put to use in the real-time environment. The technical and business knowledge gained from this internship was highly valuable and would greatly help us in our future endeavours.

By,
Antony Mevin Fernando
IV year CSE



Eshwar Krishnan S



Antony Mevin
Fernando



Mohammed Rizwan S



Kaushik P

INTERNSHIP @ IIIT BANGALORE

This summer, I interned in IIIT Bangalore under the guidance of professors Dr. Shiva Kumar Malapakka and Dr Shirisha Rao. Myself and another student were working on this project. We were assigned a PhD scholar to guide us. The goal of the project was to identify the number of pairs of counter rotating vortices in a hydro-magnetic region.

The problem was in the area of Computational Fluid Dynamics. More specifically work in an area called Magneto hydro-dynamics. Until now these regions were identified manually. With this project the whole task of identifying the regions and counting the pairs of counter-rotating vortices and finding the strength of the magnetic field in the region was automated. We used RCNN to identify the vortices. We also had to begin the project from scratch as the data was not available in a suitable format. The required data was simulated using VISIT a simulation software. Right from labelling the data to testing it and running the RCNN program our PhD scholar helped us a lot.

Every Friday ended with a progress report where we had to present our weekly progress to the professors. And then there would a session on our goals for the next week. We had many internal events and got to meet lots of new people from other colleges and attend leadership meets that were conducted in the campus. There was an Intern Day and all of the summer interns were taken to the Bangalore Palace on a weekend. Overall it was an amazing experience for me where I got to learn a lot.



By,

Hariny G

IV year CSE



INTERNSHIP @ ADMATIC SOLUTIONS



Analytics startup involved in marketing automation, real time image and video processing, computer vision, AR, object recognition and digital media. Working as a computer vision intern at Admatic was a great opportunity to experience how developments in this field can significantly solve many social challenges.

I worked on a project that enabled students to learn fundamental mathematical concepts in an interactive manner. The goal was to facilitate the understanding of a concept through visually appealing and interactive means via computer vision principles. One of the first things I understood was the importance of self learning and being able to quickly get comfortable with working in areas that I was completely unaware of, which was often the case as I had no previous experience working on building an actual working product for a company. Having said that, I found the whole team to be extremely welcoming and encouraging towards all interns. They managed to achieve the delicate balance between fostering individualistic thinking and problem solving whilst simultaneously ensuring that we had all the help we could get, without using our unfamiliarity as an excuse to spoon feed us anything. The challenging part was delving deep into the most basic of concepts and coming up with a way to explain them to a student of any age group, in a manner that truly helped them understand what the concept was and how it came to be. For a lot of concepts, this essentially involved visualization and a way to interact with what was being shown, so that the learner could grasp the fundamentals and not just have basic working knowledge.

The most valuable lesson I learnt was the difference team work and coordination could make. In that, Admatic truly shined as they had an amazing team, well versed in several areas of computing, all of whom were more than willing to help us learn the ropes. This set a precedent for what was expected of the interns and ensured that we all played well together, ultimately helping all of us produce better results. This also ensured that whenever one of us encountered any obstacles, we would solve them as a team, warranting quicker and in many cases, better solutions. I found the work culture to be highly motivating and flexible, without any unnecessary restrictions that impinged on my freedom. To conclude, it was an amazing experience, with a slightly steep learning curve depending on your experience, and one that will definitely go down as a memorable internship experience.

Pranavi Shekhar
III year

INTERNSHIP @ QUBE CINEMA

Pranav and I recently had the unique opportunity to intern at Qube Cinema during the summer of 2019. The internship was for 5 weeks. Although 5 weeks is a short period for an internship, We learnt a lot and we are grateful to have had such an opportunity. My first time at the office was on 24/05/2019 when I was called for an interview. It was a short and quick interview, at the end of which, we were told, we would be an intern during the coming month. We were really excited to begin our work.

On the first day, we were introduced to the Justickets Android Team and was briefed on what we will be working on. Initially, our job was to write unit tests for the functions used to build the app. We worked on Android Studio. Since Kotlin was declared the official language for Android development, we were also advised to get familiar with Kotlin. We began by going through and understanding the code base. Reading and understanding code has never been difficult for us until this point. Once we were comfortable with the functions, we started writing unit tests. We used different frameworks like JUnit and Mockito. Concepts like stubbing were only theoretical so far but we now had a better understanding of such concepts. By the end of second week, we were done with writing unit tests for certain functions which we were assigned to. We were later introduced to GUI Integration Testing, which is basically testing the UI elements and their actions.

Later, we were introduced to Test-Driven Development. It is a completely new and interesting concept for us. As our progress was good, we were also told to refactor and develop code along with testing it. During the final two weeks, we were asked to work on certain features to support the app for the next Android release. We cannot share further details on the same. We never thought 5 weeks was sufficient time to make significant contribution. But with the right mentor, 5 weeks can be made highly productive and an excellent learning experience. Weekly yoga and occasional foosball matches kept us away from our laptops.

We thank the CSE Department for encouraging us to pursue internships and expand our knowledge.



Shreyas S



Pranav

IV Year CSE

INTERNSHIP AT IIT MADRAS

I had done an internship at IITM for one and half months from May 15th 2019 to June 30th 2019 on the topic “Representation of learning methods on graphs and their extension hypergraphs” under Dr.Balaraman Ravindran.

In the first 10 days of my Internship, I had done an NPTEL course on Introduction to Data Science and Engineering which covered the fundamentals of data sciences - Linear Algebra, Statistical Analysis and Optimization for data science. I implemented the different models of machine learning to get good accuracies using R. The next part of the Internship was based on trying to understand and analyse different research



papers. This got me reading up on Graphs which can be used to represent a lot of real world datasets like Social Networks, molecular structures, web links and maps. Graph Neural Networks are connection models that capture the information represented as nodes. They are extensions to neural network models.

The papers were based on modelling social network as graphs & hypergraphs and helped me to understand how to analyse them to find patterns and optimise prediction results. I learnt about various Graphical Neural Network algorithms like Deep Walk, Node2Vec, LBSN2Vec, Hypergraph convolution & attention and Hyperedge2Vec. I implemented some algorithms and then used R to finetune them to get better results. Hypergraphs represent data better and can be used to model the dataset and give predictions which are more precise when compared to the graphical approach.

To summarize, I enjoyed doing an internship with a prestigious Institution where I had a very good mentor to guide me at each stage of my project.

Akhilesh M
IV Year

CATERPILLAR - INTERNSHIP

This summer I got an opportunity to intern with Caterpillar for two months. In this period, I had so many interesting experiences that were very helpful in my professional and personal development.

I worked in the Engineering Design Centre of Caterpillar where I was a part of the Engineering Automation team. We worked on finding ways to automate time consuming processes. My major contribution, as a Computer Science intern was towards building tools for manipulating JT files (compressed form of CAD models). In this process I was able to learn a lot about the company's domain and develop tools based on the user's requirements. I worked on three exploratory projects that focussed on altering JT files. I had to research about the available technology and toolkits to develop these tools.



Some of my other works concerned creating user interfaces using C# and .NET framework. I was able to collaborate with my other fellow interns and learn about the projects they were working on. In that process, I familiarised myself with some interesting technologies apart from what I had developed. Caterpillar organized a few industrial visits to motivate and enlighten us about the products they develop and our contribution towards them.

During this internship, I was able to gain an overall understanding of how an MNC operates and the entire lifecycle of a product from development to deployment. Working at Caterpillar was a memorable and a rewarding experience.

Aishvarya S
IV Year

INTERN AT IIT-M RESEARCH PARK

I did my internship at The Centre of Excellence in Wireless Technology(CEWiT), IIT Madras Research Park, for a duration of 6 weeks from 24th May to 5th July, 2019. I was tasked with developing an AMF Test Stub program for the 5G Core Network. The goal of this stub was to test the workings of other functions in the core network, in order to debug errors and failures in the workflow of the functions that have already been developed.

It was difficult for me to understand the concepts in the beginning, since I had no prior experience to the topics at hand. Over the course of the first 2 weeks, I looked up at multiple resources available online, to get a better understanding of the requirements of the task. The main task was split up into multiple phases of smaller tasks, which made the development of the stub a much simpler process. As the weeks passed, I was adding more complicated functionalities to the program, which would eventually add up to the final application that was required.

The overall working environment of the place was excellent. All of the employees were very knowledgeable in their respective domains, which made it very simple to ask queries to any of them and expect a reasonable explanation. They were all extremely patient and willing to answer any and all of my questions, and determine errors in my program that prevented further progress. They were also able to answer any queries regarding the internal workings of the system, which made it much more simple for me to understand and implement the necessary functionalities in my program. They were also willing to let me work at my own pace, and with the modules that I'm familiar with, which helped in much quicker development of the program.

To conclude, my experience throughout the duration of the internship was very good. I was able to understand the workflow that is present within a company when developing their product. I learnt that communicating with the people that knew more than me, on a frequent basis definitely helped in faster development of the program. I gained a lot of information on how to approach a certain problem, obtaining the necessary resources required to solve the problem and coming up with a proper workflow in order to ensure that the end result can be obtained in an efficient manner.

Ram Kaushik

III Year

CITI BANK INTERNSHIP EXPERIENCE

During my Summer break May-July I did my internship at Citibank. It was a two-month internship. Citibank is the consumer division of financial services multinational Citigroup. I was given a role of Summer Analyst. During few initial weeks we (interns) had an orientation program, which was mainly focused on the Banking and various technologies of banking. It also gave a brief introduction about Citi and its various departments. During the second we were given projects to work on. I worked in Data Analytics project. First project was to run Analytics on GC(Garbage collection) data and compare it with historical data. Second project was on Trade Reconciliation project which was mainly to ensure consistency of the data. The technologies used was Python, Pandas for analytics and Elastic Search. We had weekly catch-up to discuss the project progress. The work culture at Citi was very good and there were no fixed working hours for any employee. The Managers at Citi were very approachable and indeed very helpful. They were always ready to clarify our doubts be it a technical or business related. It was a great experience doing an internship at Citi. Learning new Business technologies was a great takeaway from this internship.

Nafisa Saida

IV Year

INTERNSHIP AT DRDO

I had the privilege to intern at DRDO this summer where I needed to team up with a chemist and build up a machine learning engine to foresee the density of organic compound which could be utilized to control cutting edge deficiency of fuel. The working condition was proficient for any sort of research and the researchers over there were strong with their profitable contribution. As it was a government association I was not paid for my work over the summer but rather I could win some important research experience which would be addendum to my resume. I am as yet teaming up with the researcher and would want to publish a research paper in the journal of computational chemistry before the current year is over.

Pranav Raveendran

III Year

RESEARCH INTERN AT IIIT-DM

Over the summer holidays, I had the opportunity to work as a research intern at IIITDM, Kanchipuram. The problem statement my guide posed for me had to do with biometry; to be more specific, facial and retinal biometry. There is a large body of work on facial and retinal biometrics already, so a good few weeks was spent on Literature Survey, which turned out to be quite arduous. I have a new found respect for people in the field of research. Once this process was complete, my guide and I figured out the best way to move forward. With regards to facial biometry, we decided to explore Heterogeneous Modalities (that is, using images of different imaging modalities, like Near-Infrared and visible light) to perform biometry. I designed a CNN for the same



research. Once this process was complete, my guide and I figured out the best way to move forward. With regards to facial biometry, we decided to explore Heterogeneous Modalities (that is, using images of different imaging modalities, like Near-Infrared and visible light) to perform biometry. I designed a CNN for the same purpose. With retinal biometry, it was more complicated as there has been a lot of work done in this field before, so my guide and I figured out a way to make it faster while still retaining accuracy. Overall, this internship experience was immensely enriching, and I'm glad I had the opportunity to do it.

Tejas Sivan
IV Year



RESEARCH INTERN AT IIIT-DM

During the summer of 2019, we got the opportunity to intern under Prof. V. Masilamani, at the Indian Institute of Information Technology, Design and Management, Kancheepuram. It was one of the best learning experiences in our careers and I'm sure we would put good use of the knowledge we gained in the intern.

It was a one and half month internship which started right after our exams, on May 13th.

The problem statement given to us was 'Predicting the ADRs(Adverse Drug Reactions) of Drugs'. We were interested in Machine Learning and this was the perfect ML problem to be solved in the market today. We worked on various traditional Machine Learning algorithms. Our mentor was really helpful and provided us with a lot of reference papers. One of the papers we worked on was from a journal called 'Scientific Report'. It used knowledge graph method, along with enrichment tests and feature vector constructions to predict the particular adverse reaction of a drug. We first implemented their idea of solution to get a better understanding of the problem and we applied traditional Machine Learning algorithms to the same, to understand the accuracy difference between their method and normal methods.

The next thing we did was implementing Bayesian Confidence Probability Neural Network (BCPNN). In this network, the drugs were input layer and ADRs were output layers. This method could give us the strength of the signal, i.e. how sure it is that the given drug causes the ADR. We calculated the weights between each drug and ADR and use it as a metric to calculate strength.

On the whole, it was the perfect way to spend summer. There was no work pressure whatsoever as we didn't have stipulated working hours. It was the perfect balance of fun and learning. We also had the opportunity of meeting some of the research scholars in IIITDM, who also shared their experiences. We were really interested in Machine Learning and this intern really boosted our interest in the same.

V Venkataramanan, Soumya Kannan

IV Year

SUMMER INTERNSHIP AT TCS

I had the opportunity to do my summer internship with TCS, Kochi from May 14, 2019 to July 12, 2019. I was assigned a project based on natural language processing and time series forecasting.

My project was to build an intelligent ticket prediction framework. A ticketing system is a customer service tool that helps companies manage their service and support cases. Every time an employee faces any problem, he/she raises a ticket. I was asked to build a model that could predict the number and types of tickets that can be expected in the coming months based on the data from previous months.

My first task was to use the description of the ticket to identify what category the ticket belonged to. This was a basic classification problem. I acquired the sample data from the



online ticketing platform ServiceNow. I used the linear support vector classifier provided by scikit-learn. The linear SVC classifies data by finding the best fit hyperplane that categorizes the data. For the prediction I used a tool called FBProphet, a time series forecasting tool supporting both Python and R. Prophet is a procedure for forecasting time series data based on an additive model where non-linear trends are fit with yearly, weekly, and daily seasonality. This tool can be used with Python and trained on time series data. After the training was over, I used it to predict the number of tickets of each category. The predictions made were satisfactory and the tool had also taken care of pre-processing issues.

Overall, I had a very educative internship experience with TCS. It was my first time working with natural language processing and machine learning and I learnt a lot. My mentor was very approachable and always available to give me constructive suggestions and clear my doubts. I look forward to more such opportunities in the future.

Priya Anna Christall

IV Year

INTERN AT SIEMENS

Over the summer, I did an internship at Siemens Industry Software Limited, Chennai. I worked as part of the Intelligent and Control Systems team headed by Dr.Ajinkya Bhavne from 15th May to 05th July 2019.

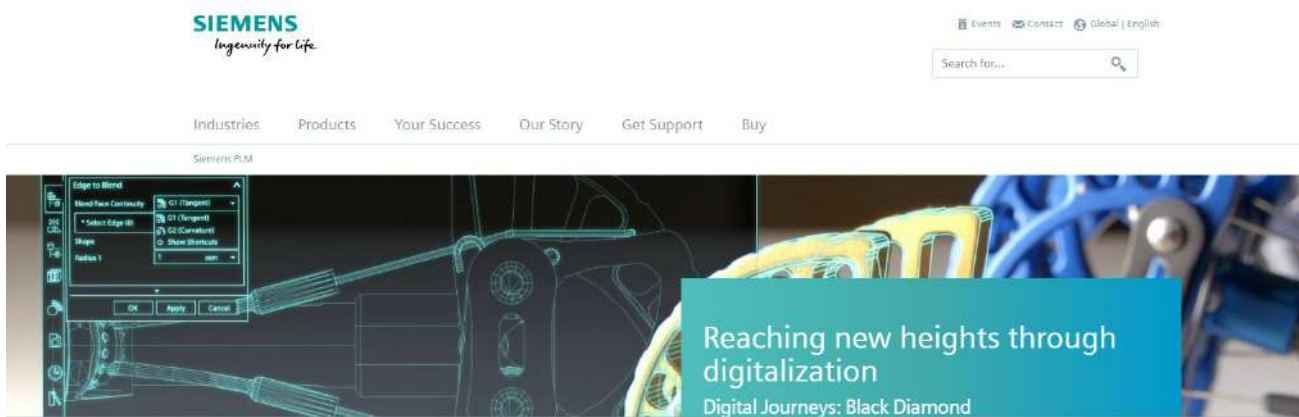


During the first week, I worked on doing video and image processing on the data that is recorded in a self-driven car (autonomous cars) using a library called FFmpeg. FFmpeg is a free and open-source project consisting of a vast software suite of libraries and programs for handling video, audio, and other multimedia files and streams- which can be used to vary frame rate, vary aspect ratio, crop images etc. I also

worked on a visualisation tool based on AVS(Autonomous Visualisation System) to demonstrate how an autonomous car perceives the world around it. It is a server-client based application written in JavaScript which interprets the autonomous car data (Camera images,Lidar Scans, GPS coordinates) and creates 3D scenes and plots it.

Operators use the visualization tool to inspect perception and prediction data of an autonomous vehicle. It can be used to analyze the edge cases to see as to why a car took a wrong decision during its journey. On the whole , the internship was a very enriching experience and I learnt a lot over the two months.

Sarah Mathew
IV Year



INTERNSHIP @ SIGMOID

Over the summer, I worked at Sigmoid Analytics, a data science and data analytics company. At my internship I was exposed to the startup work culture and a little bit of the corporate side of the tech world. I worked on 3 main topics over the duration of 6 weeks, being, Conditional Random Fields, Quantum Machine Learning and Quantum Neural Networks. While working on conditional random fields, I was building scalable software for named entity recognition of Medicinal Devices and Drugs from a corpus of text.



This project had me using Markov models, HMMs and Bayesian Probability to build Named Entity Recognition systems. When I was working on Quantum Machine Learning, I learnt Quantum physics from scratch and started to work on IBM's Quantum Computing platform. Using their libraries I built a Quantum Linear regression model to work on house price prediction. Although not quite scalable just as yet, this project was more research oriented and had me connecting the maths behind linear regression to quantum physics, a truly interesting topic. Post finishing my work on Quantum Linear Regression, I implemented a Quantum Neural Network based on the landmark paper by Seth Lloyd and XanaduAI. The QNN was used to detect credit card fraud and it implemented concepts of photonic computers and variational quantum circuits. I ended my internship by presenting my work to the founder in a 1.5 hours long session, explaining the future of quantum machine learning and intricacies of the neural network I had built. In my time at Sigmoid, I wrote two white papers, comparing CRFs to LSTMs and the future of quantum machine learning.

Rohit Midha
III Year

INTERNSHIP AT ERICSSON

Our team participated in SIH 2019 and solved the problem statement formulated by Ericsson. The problem statement was titled “Geographic Profiling of Routes Bases on Crime Zones”. After being declared as winner of the problem statement, the Ericsson representatives asked us to meet them at their office located at Chennai. We spoke about our approach towards solving the problem and they offered us with a two months internship starting from May 13.

The problem statement was related to “Congestion Control in Networks”, where we were expected to classify the data into various levels of congestion. We signed a NDA document and then received the data. Weekly once we had to attend a Skype Meeting, which involved our mentor and also many other elites from Ericsson. The meeting often provided various insights into the data and we continued our work based on the inputs obtained from the meeting. We finally developed a working model which they forwarded to the R&D for further consideration.

The internship provided an amazing learning experience. We were constantly monitored and mentored and we learnt how to approach a real-life industrial problem. The meetings with the mentors and other people involved in the project taught us how to effectively communicate our ideas and draft formal reports at industry level. We were also taught how to debug a code systematically, isolating various parts of the problem domain.

In total, the internship experience provided us with lot of new experience, giving us an idea of what to expect in the years to come.

Edison M, Akshaya R

IV Year

In SIH 2019, team titled 'InsertGenericName' managed to win the first place under the problem statement Geographic Profiling of Crime Data. Since the company Ericsson, who was the owner of the problem statement, was impressed by our performance they decided to offer us a research internship at their company. The two month research internship began on May 13th. We were assigned Mr. Hari Kumar as our mentor who was a senior research engineer at Ericsson, who also is a holder of multiple patents. Our mentor gave us the freedom to select our own problem statement, and we utilised this opportunity to select a project that involved the field of music which was our passion. Our project was on Automated Music Composition based on Indian Classical Music using AI

After initial few days of brainstorming we formed the basic pipeline for our composing system. The system takes in a song of Indian classical genre as input in the form of a MIDI file. This MIDI file was processed to give a dataframe that is suitable for training our bot using Machine Learning. We created separate modules for generating the choice of notes, the time duration of notes, the ending note of each phrase. We employed this technology called LSTMs i.e Long Short Term Memory Neural Networks. These Neural Networks are capable of learning patterns from the input data, and have this special ability to maintain a memory of previous inputs for better prediction of future inputs. These LSTMs were individually employed to generate the note sequences, time sequences and the end notes. Finally the outputs were merged together to output a wholesome tune or a song. This song is again delivered as a MIDI file. is to be published as a research paper by Ericsson. Our internship has offered us a very rich learning experience.



The unique feature of our work was that our bot is capable of composing 'Gamakams'. 'Gamakams' is a unique feature found in Indian classical music, which can be identified as fast sequence of notes strung together and played sustainedly. Our bot separately generates the gamakams and adds them to the basic tune composed. The final tune gives the same vibe as found in the input tune.

Towards the end of our internship our mentor took us to meet professional music composers and carnatic experts to receive their feedback on the work and to discuss further changes. Our work at our internship is to be published as a research paper by Ericsson. Our internship has offered us a very rich learning experience.

Ashwin PS, Haritha A
IV Year

INTERNSHIP AT BONFIRE INNOVATIONS

First, I would like to thank Mr. Siddhaiyan Gopal, the CEO of BORNFIRE Innovations Private Limited, for giving me an opportunity to intern with their organisation. This report details my summer Internship at BORNFIRE Innovations Private Limited, Chennai. My work was related to Android Application Development. BORNFIRE Innovations Private Limited, provides banking applications to clients in the countries like Mauritius. From June 10, 2019, I worked for the organisation as an Intern till July 10, 2019.

My responsibility in the company was to observe the technologies used there and to develop an application using them. But I also learned about how they process the requests for the banking services. I learnt a lot about how to communicate with people in the organisation who were very different from me. All the employees were friendly with me, and it was easy for me to learn and understand the projects that have been developed. For the first 3 days, I was



observing the work of the other employees in order to do my part. Once I completed my initial observation, they asked me to develop an android application for Hospital Management System to maintain and retrieve patient information. I learned to process the request and response for the service using Retrofit. Retrofit is a REST Client library (Helper Library) used in Android and Java to create an HTTP request and also to process the HTTP response from a REST API. Also I also learnt about implementation of Web service on Android.

On the whole, I got the right opportunity to work in the corporate field, improve my skills and this project helped me learn new technologies.

Ajith Mani
IV Year

PLACEMENTS



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Chandrasekharan M
Malavika C



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Tharun Ganesh (PPO)



Dhanalakshmi
Edison M
Samantika Sivakumar



Akshaya Ranganathan
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Priya Anna Christall



Aishwarya R (PPO)



Priya Anna Christall
Shruthi Sree
Nandita Gopal



Mu Sigma
Abishek TS



Nandhinee PR

REACHING NAVIS

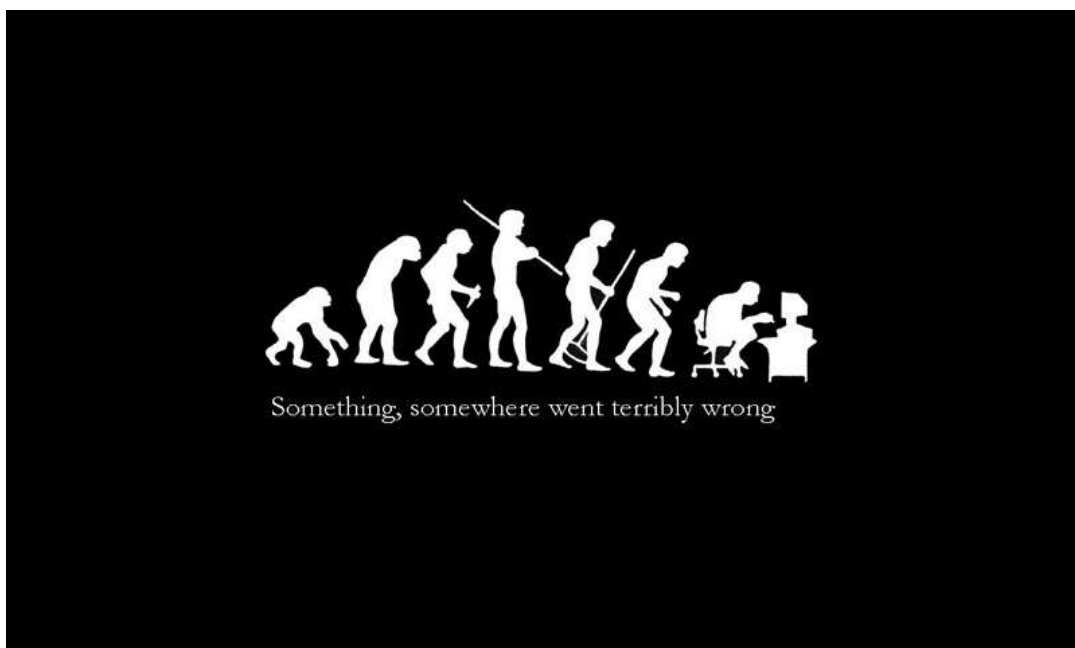
Navis was the first super dream company to come for placements. First, there was an online test on HackerRank Platform. The test had 21 questions. 10 were Aptitude, other 10 were Programming Logic MCQs, and one coding question. The next day, the namelist who were shortlisted for the face to face interview was announced after their Pre-Placement Talk.



During the PPT, they explained the domain of the job Navis does, and provided various insights into the company. Then the SSN Alumni working there spoke and shared about the working atmosphere at Navis. There were three rounds of interview, two pen and paper technical rounds and one HR round. The questions were majorly from Data Structures.

It was a great interview experience, as the interviewer was encouraging me to come up with a better solution everytime. Finally after the HR round, they announced the names who got the offers. It was a very happy moment and we took pictures with the recruiting team of Navis before receiving the offer letters.

Edison M
IV Yr CSE



CLIMBING UP THE LADDER

Hi all! I am Dhanalakshmi from CSE Final year. I feel immense pleasure in sharing with you all that I got placed in Navis. I wish to share my interview experience with everyone. Well... To tell about myself, I am a rural scholarship student. I pursued my higher secondary education in Government High School, Manampathy. Having come from a Tamil medium background, the first challenge I faced after entering the college is English. I had difficulties in understanding the subject and communicating with my friends and professors. However, our college offered special classes for me to improve my language. I had great support from my faculty members and friends as well. This slowly improved my confidence and gave me the courage to sit for placements. Again, I had a huge support from the college side. I got selected in the first round of Navis. I answered all my technical and HR rounds based on my previous class lectures. So, my special thanks to all the faculty members who have developed my conceptual strength. And yes... Finally I got selected in Navis!! Thank you all who have supported me throughout my journey in this college!



Dhanalakshmi A
IV Year



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MRIDANGAM MAESTRO

Having been born and brought up in the United States, I shifted permanently to Chennai last year, to pursue my Undergrad education at SSN and also boost my career as a professional Mridangam artist. I learn mridangam from Vidwan Dr. Patri Satish Kumar in Chennai.

Earlier this year, in March 2019, I was recognized 'B-High' Graded artist by All India Radio, Chennai and I was initially graded at the age of 13, being the one of youngest graded percussionists in AIR.

Last week, I was sponsored to perform on a tour comprising of 4 concerts in Australia by Geervani Performing Arts based in Sydney, New South Wales, AUS. This was on the occasion of Ashaada Navaratri and the venues were Karpahavalli and Vaaraahee Samsthaan, Sydney. This tour was my first travel abroad as a musician and was a tremendous learning experience for me, as I adapted the skills of independent travel, manage responsibilities, and performing to the effect of reaching the audience in a foreign country which has lower exposure to Indian Classical music.

I hope to continue performing at international venues to promote the richness, deep rooted intellectuality and vast culture of South Indian Classical (Carnatic) music, and Carnatic percussion.

Hariharan Sundarraman

II Yr, CSE



SHAPE @ CSE

SHAPE (SSN Higher Secondary Schools Awareness Raising Programme in Engineering) is introduced by SSN to School students as an internship program. Three students have worked on different projects in CSE, under the SHAPE program.



INTERNSHIP @ NEPAL

I was in an internship program that was in a company which is established in Nepal. The name of the company was Synergy Automation and Instrumentation Pvt. Ltd situated at Dillibazar, Kathmandu, Nepal. In that company I got a program of web development to develop a website for Digital notice board system. My internship started from June 15 2019 to July 7 2019.

We created a website for the digital notice board system where a user could order the notice board. As per the requirement of the user in that project I was helping out my superior Mr. Shailesh Subedi and his team for the project.

The main objectives of that company were:

1. To be able to contact direct foreign customers through this website so that it don't have to go through middleman.
2. To mobilize and promote locally available resources and produce quality based products.
3. To provide online ordering facility to the customers.

The main issue of this project was the very fact that the employees would have hard time understanding the working of website. Similarly, the database of this website records the data of only those customer who have registered themselves for query. Besides these, this website provides the information of only customers that orders the products rather than information of others.

While working for my team, I initially faced many challenges, and it was only with the help of my mentor/guide Mr. Shailesh Subedi I was able to become a full fledged part of my team. Because of this project I was able to learn many intricacies related to web design and development. I am very thankful to my guide as well as the managing director of synergy automation and instrumentation pvt. ltd., Mr. Umesh Sapkota for providing me this opportunity.

Prathyush S.
II Year, CSE

AIIESEC - CHINA

The internship ONE BELT ONE ROAD was for a period of six weeks in China, from June first week, which was based on sustainable development goal 17 set by the United Nations General Assembly.

It was a fun and educative internship in which our primary task was to collect data on foreign business men settled in china, the data mainly consisted of the amount of imports and exports of their business and the amount of tax they paid to the Chinese



government. Also the problems faced by the business men in general such as visa application, bank loans and ownership of property were taken into account . Finally the entire trend was mapped and a report was put together and submitted to the Chinese government .

In the last weekend a global village event was conducted in which members from 14 different countries participated and displayed the culture of their countries through dance , music, food , clothing and art.

Jashwaanath S B
II Year, CSE

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IV YEAR

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