

SAMHITA 2K18 EDITION



DEPARTMENT OF INFORMATION  
TECHNOLOGY, MIT  
PRESENTS

# VIRTUOSO

-AN ITA INITIATIVE

Technology is the campfire,  
around which we tell our stories





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#### **HOD'S DESK:**

The Department of Information Technology endeavors to stand ever competent in producing information technologists in the real sense, through committed and well defined function processes in the department. I'm very pleased to support Information Technology Association's magazine, '**Virtuoso**'. I am confident that this magazine will stand as a testimony for the student's technical as well as creative insights.

**Dr.B.Vinayaga Sundaram**

**Head, Department of Information Technology**

#### **EDITOR'S NOTE:**

It is highly satisfying to launch the departmental magazine "Virtuoso" in a short span of time at the inaugural function of annual event Samhita. The Virtuoso is an initiative of students and faculties of the department of information technology in bringing a platform for progressive idea and views on latest development in information and communication technologies. Additionally, it will support the innovative thinking of its authors on issues including socially relevant messages. The online publication of the Virtuoso is planned to include the author's contributions in the multimedia format where, high definition image, animation, audio, and video content will be embedded in respective pages.

The Virtuoso tries to accomplish the values and the eminence of the department. Considering the interest of its stakeholders, the magazine aspires to strengthen its commitment towards social welfare. It will try expanding its reach in achieving its vision of a true departmental magazine.

# **Department of Information Technology**

## **MISSION AND VISION**

### **Vision of Information Technology Department**

The Department of Information Technology strives to produce competent IT professionals who are technically sound and ethically strong for the industries, community and research organizations at the national and international levels through excellence in teaching, research and consultancy.

### **Mission of Information Technology Department**

Information Technology Department shall impart to the educational, economic and social Development

1. By developing the students, strong in engineering fundamentals, proficient in technical skills, strong in ethical values and knowledgeable in applying the skills for the welfare of the society through competent faculty.
2. By providing state of the art facilities in which higher studies and research flourish amongst the students.
3. By enhancing the collaborative partnership between Industry, R&D organization and preparing the student to be an entrepreneur.
4. By inculcating social welfare in students, to provide service to the nation as good human being.

### **Program Educational Objectives**

Bachelor of Technology in Information Technology curriculum is designed to prepare the graduates having attitude and knowledge to:

1. Have successful professional and technical career in Information Technology
2. Have core competence in basic engineering and mathematics to formulate, analyze, and solve hardware / software engineering problems.
3. Train student community with good knowledge in core areas of Information Technology and related engineering so as to analyze, design, and synthesize data and technical concepts to produce novel solutions for the real life problems.
4. Inculcate in students to maintain high professionalism and ethical standards, effective oral and communication skills, to work as part of teams on multidisciplinary projects and diverse professional environment.
5. Practice and inspire high ethical values and technical standards.



DROONES COULD BE USED BY HACKERS. CREDIT: AKIVGK/D/SHUTTERSTOCK.COM

# Cyber Attacks - UAVs

14/02/2018

CYBER ATTACKS ON UAVS

## Cyber Attacks - UAVs

By Venkata Rathnam M, MIT, Anna University.

"A drone, technically called as an Unmanned Aerial Vehicle (UAV) can be imagined as an aircraft with no pilot on board." These UAVs have been used in an extensive number of applications, transforming several different futuristic ideas to a reality like,

- Amazon Prime Air order delivery UAVs are expected to replace the conventional delivery of goods through road transport service.
- Google has been making use of balloons and UAVs at high altitudes to provide broadband connectivity even in geographically remote places.
- The UAVs are also used for a wide range of military missions such as reconnaissance, surveillance, armed-force attacks and weapons transportation.
- In supply chain logistics, the UAVs play a crucial part in enabling the delivery of fresh blood plasma and some essential drugs to the remote regions which cannot be

reached by any other means of transport.

- The drones can also be used in the field of agriculture for identifying the pattern and success rates of irrigation and to supervise the health conditions of the crops under cultivation.

### Cyber-attacks on drones:

"Drones that communicate with the ground station controller through a wireless network are all vulnerable to the cyber-attacks. Since the on-board chips have no encryption, the drones are prone to get hijacked. The attackers can also launch a man-in-the-middle on the drones within a particular range." Some of the other attacks that can be launched exclusively on the drones are:

#### • De-authentication Attack

This attack will be launched to disconnect the connected clients (i.e., drones). In this attack, as a first step, the network to be attacked is chosen. Then the list of clients

available in that network can be found using some tools. The attack is carried out by broadcasting disassociate packets to the connected clients, for disconnecting them from the Access Point (AP).

#### • GPS Spoofing Attack

The incoming signal from the GPS satellites is used for identifying the presence of the drone and for the navigation of the drones. Since there is no encryption of the signals flowing through the communication link in the drones, GPS spoofing attack can be instigated. GPS spoofing is to transmit fake GPS coordinates to the control system of the drone, thereby hijacking the drone.

# OFF THE BEATEN TRACK

Two roads diverged in a wood..... It was either medicine or engineering. I wish I could say ,I chose the one less traveled . Unfortunately, that didn't happen. I settled with the well-trodden path. So, here I am doing my second year of engineering, with no idea whatsoever about my future.

There is a good news though, more than eighty percent of my classmates are also sailing in my boat. With the huge population, I wonder how this boat is still afloat!

At placements time of the year when you come across stories of placements with a pay of twenty – thirty lakhs per annum, and you cant help but wonder if there is anybody who would pay at least a penny to hire you. Placements, internships, workshops, trainings ,so much stuff to take in .It all happens just when you are starting to understand the difference between c and c++. When you see the seniorsworried about their graduation, you do understand the seriousness of the situation. At this time, you are overwhelmed by the success stories of average pointers decide to turn your life around. The first two days, you will be brimming with energy and clearly determined to crack your withstandin linked list program. After some huffs and puffs , you manage to pull through and figure that out. Then after a week's time, you realize that back end coding is not your forte and change to to front end. At last, you step into your final .Your monkey brain jumps between preparing for placements and TOEFL, GATE, and any other exam preparation. When January comes all your friends are either placed or admitted into some abroad universities , while you are still banking on the bulk companies that are ready to give you a job with some minimum salary. That's when the bigwigs of your college decide that there will be no bulk hiring that year. Poor you! With your mother's cousin's son's friend working in some MNC , you somehow land up in a 9am-5pm job. It sounds tiring right? So where do we go wrong? In our quest to land in a perfect package or to buy a dream car, we are losing the essence of education.

Gone are the days when almost every electrical, mechanical or instrumentation students ended up as experts in their fields. If you ever visit a BPO , you can surely find at least a person from each stream of engineering , slogging with excel sheets and accounts. It doesn't matter if your friend buys a 3 BHK apartment before you. What matters is, after ten years, he would be saturated at his job, while you will start to flourish. Don't run behind fat packages, you will eventually get it if you deserve them. Instead just focus on the area , you really want to learn and explore . You may want to do an MBA or study literature or fly some planes .Your dreams are achievable only if you figure out a plan to achieve it .You must ne willing to go for it, no matter how tough the obstacles become.

Because in the end "YOLO " ,You Live Only Once .So choose a road that you really want to travel though the path you choose may be the less travelled and dangerous , but I'm sure that it is the one your heart desires for.



## Opinion: The concerning black box model of AI

At NIPS 2017, One of the most prestigious and rigorous AI conferences in the entire world, Dr. Ali Rahimi pointed out very eloquently that AI has become "Alchemy". I concur.

A very coarse definition of Alchemy is a seemingly magical process of transformation, creation, or combination. Think Elixirs and the Sorcerer's stone. He compared the development of new AI models to this. Rahimi gave a 30-minute talk on this topic. He mainly criticized the lack of proof and solid evidence of newer AI models. The uncertainty about how they work and the fact that no one really knows what they're doing while working with ML/AI even within Academia. I do think we can generalize the "Alchemy" factor to mere mortals without a PhD.

The backbone of Machine Learning is Math. There's no other way around it. There are two types of people who employ modern AI techniques. The researchers, academics who study ML and have a very vast knowledge of the subject and the Math behind it. To them, Machine Learning or even parts of Machine Learning is a "White-Box" Model, meaning that they know what they're doing. The box is transparent.



The other type are the developers, the implementers who simply use built-in functions to get the job done without thinking of the Math or how it even works. I understand that there are people in the middle, who do want to learn more about the inner workings of ML. What this type of "Black-Box" learning does is harmful both to the AI society, the developers themselves and the future of AI. How many of us type "from sklearn import svm" without even knowing what a Support Vector Machine is? How many Github accounts have we downloaded and run without having a clue about how it works?

Rahimi's main concern was how everything has been made into a "Black-Box" model by companies, individuals and even people from academia. When we hide source-code, metrics or proofs we hide the truth. Not knowing the truth can also be disastrous. Let's try to learn the truth and back it up.

# MS.DHONI , MAN OF MILLIONS

There is a point in life when you realise a sportsperson has transcended the sport. It is not about watching him play, it's more about life. You almost start watching the player show you through the game how to chill amidst chaos, pain. MS.Dhoni has been my favorite cricketer ever since he started playing for the Indian cricket team. I admire him not only for cricket but also for his values as a person. He is easily "THE MOST HATED CAPTAIN AND ALSO THE MOST LOVED ONE". Having admired him for so long, I have learnt a few lessons from this man.

## 1. India first, Everything else next

During Australia-India-England tri series on Feb 2015 Dhoni was blessed with a baby girl. Any other person would've flown to India to be with his family in such a blissful moment. But Dhoni who is an extraordinary person knew that his team was under immense pressure and decided to stay back and guide the team. And the end of the match when questioned about his decision his answer was "I am on a national duty, everything else can wait". One word for this man, R.E.S.P.E.C.T.



## 2. Find your passion

When you follow your passion, no one can stop you. But before following it you need to find it. If you identify what you're truly passionate about, then finding your career in it will not be far away. In the initial days MS.Dhoni used to like football but later in his life he identified his passion for cricket and changed it into his profession. If you are passionate about something and ready to put hard work you can definitely have a taste of success.

## 3. Learn from failure

Always learn from your mistake. Also consider your future as an opportunity to learn, it will change the entire perspective. We can recall the situation where Bihar U-19 team was defeated by Yuvaraj's Punjab team in the finals. Yuvaraj had scored 357 and got selected in the U-19 world cup. Dhoni made this moment memorable by distributing sweets to his friends and use this failure as an opportunity to improve his game.

## 4. Dream big start small

Dhoni was raised in a middle class family. His family wanted him to get into a stable government job. But, Dhoni has a bigger picture. But for his family took a job of ticket collector but still continued playing cricket and improved his game. He finally achieved what he wanted.

## 5. Treat victory and defeat the same way

"If you can meet with triumph and disaster and treat the two imposters just the same, the world becomes yours and everything that's in it. And which is more you'll be a man, my son "

– Rudyard Kipling.

Who can justify these lines better than MS.Dhoni . Be it the T-20 world cup win, champions trophy, IPL trophies.. You'll always find he is the most composed and calm man in the team. He always supports his team no matter what, give them credit when the team wins and takes the blame when the team loses defending his team. One such incident when he was asked to hold the trophy for India being No 1 in test side. This is what he said " Can't pose like Nadal. This trophy belongs to the team".

Leadership qualities and coolness should be definitely learnt from this man.

## 6. Catch the train the right time:

Be it the stumpings he does at the right time or the last over in T-Final or the train he took to his home after quitting the job, Dhoni always loves taking risks. "Chances are like heartbeats. You can't afford to miss a single one". Dhoni sticks to it. He takes risks and be the risk worthy or not, he stands by his decision MS.Dhoni has proved again and again that to succeed you need to take risks . Risks?? Yeah but not uncalculated risks. Trust your instincts, go with your gut feeling. You'll succeed more often than you fail.

The man has shown us perseverance. He has shown us patience. There is a lot more to learn from him. Let us learn from him and last but not the least "Believe and the world is all yours"

## **SHARPEN YOUR CPU - THE BRAIN:**

### **What is IQ ?**

This column is reserved exclusively to help the coders blossom the brain by enhancing their Intelligence Quotient (IQ) Levels . The term is coined after it's origin from the German Language 'Intelligenz Quotient ' . Mankind generally get baffled between Common Sense and IQ Levels. High accuracy of Common Sense for infants is exceptional and that indirectly means that the child has altitudinous IQ Level.

All that you need to know !

Recognized tests help determining a person's IQ score. A mediocre is expected to score from 85 to 115 in the max. Terrence Tao an Australian-American mathematician is said to have a tremendous IQ Level of around 230 in this heavenly body. He was already a Ph.D., grad by his early twenties. Another nameable personality Albert Einstein had an intellectual score about 160. Viswanathan Anand, Indian Grand Chess Master also shares Einstein's rank. An equal woman competitor is said to have her origin from Tirunelveli, with an adorable score nullifying Terence Tao's on subtracting and her name is K.Visalini.This 17-year old has busy schedules attending International Conferences and also projecting herself as an eminent speaker.She's also reserved a place in the Guinness Book of World Records for clearing CCNA exams at the age of 10.

### **How to soar up brain's functionality ?**

Scientists have proven that this score range can be elevated definitely and that requires only a little of daily day's effort. The first footstep towards this is to do your regular routines in an alternate way, i.e., to brush using your non-dominant hand or to take a different route to office or college or to even walk backwards etc. Next is to meditate early in the mornings and add up few aerobic exercises to feel fresh. Ensure that you have a sound sleep of around 7-9 hours on an average. Quick naps in the afternoons also helps. Nothing can help elevate your scores other than reading, so do read. Get new experiences by travelling around and through that learn a new language .Consume dark chocolates regularly and protein-rich foods. To conclude,staying healthy automatically has an impact on your brain development!

# I WONDER...!

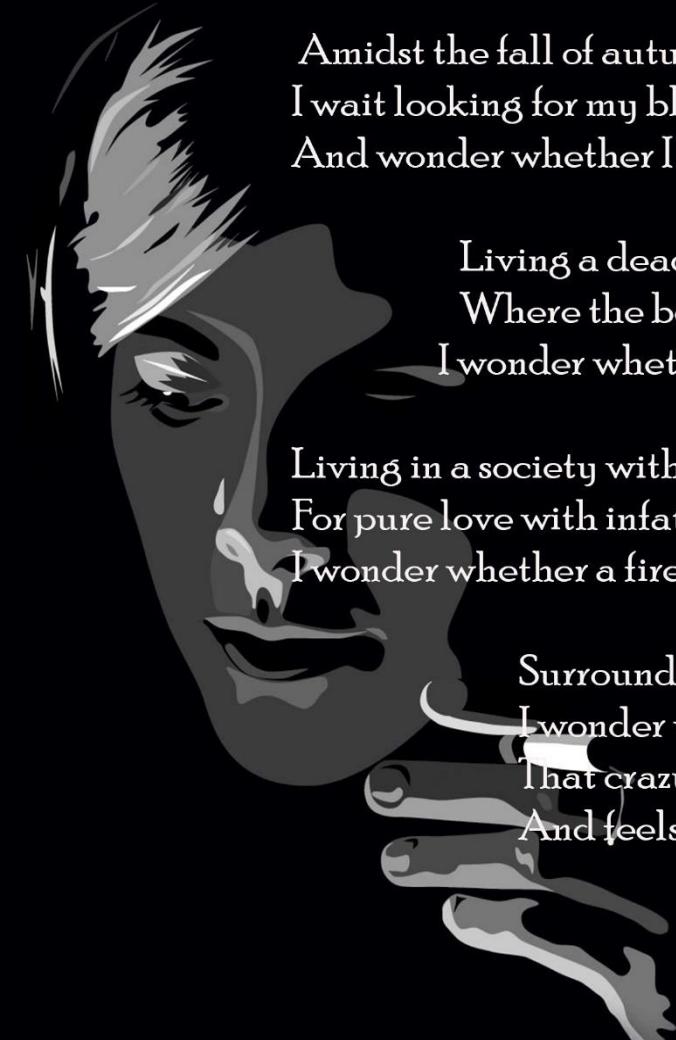
In the vast exuberant wild night sky,  
I stare at the moon with a great sigh  
Wondering whether a star is thinking about me?

In the green parks filled with love,  
I search for my peaceful dove,  
And wonder whether it lost its wings?

In this wide miscellaneous world,  
I feel like a lame darkening cold,  
And wonder whether I deserve a sunshine?

In front of the deep calm ocean,  
I stand with a half-minded commotion,  
And wonder whether a pearl awaits my path?!

Amidst the fall of autumn,  
I wait looking for my blossom,  
And wonder whether I will ever experience spring?



Living a dead life in this monotonous earth,  
Where the bodies are eaten up by death,  
I wonder whether I will meet my immortal other-soul?

Living in a society with misconception,  
For pure love with infatuation,  
I wonder whether a firefly will guide me through the journey?

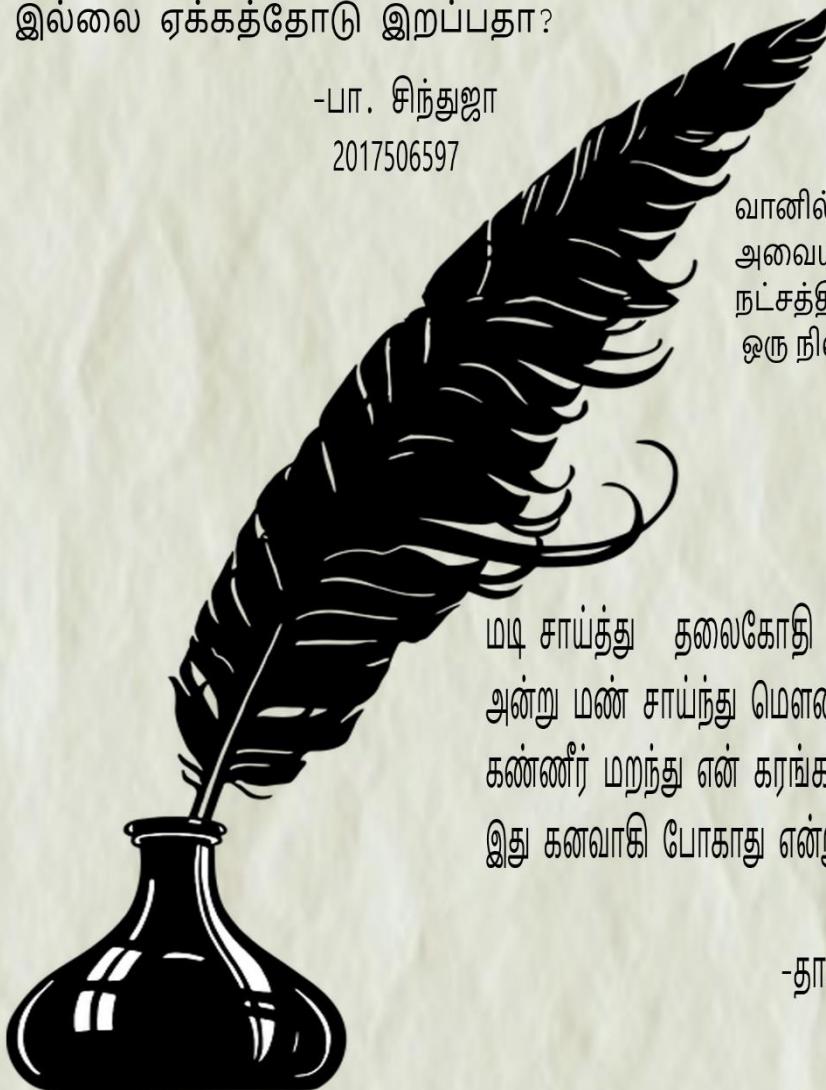
Surrounded by high browed geeks,  
I wonder whether an absurd imbecile will seek,  
That crazy childish dimple smile on my cheek,  
And feels ecstasy at its peak!

# வாழ்வா சாவா!?

அன்பான வார்த்தைக்காக ஏங்கும்போது  
அம்பின் ஆற்றலோடு காயம் செய்கிறாய்  
பாசத்தின் பசுமையில் வாழ நினைத்தால்  
பகைமை என்ற பெயரில் பாதிக்கிறாய்  
காதல் கொண்டு களிப்படைய நினைத்தால்  
காட்டில் கண்ணாழுச்சி ஆடுகிறாய்  
உன்னதமாக உயிர்வாழ நினைத்தால்  
உருக்குலைத்திடும் உறைபனியாகிறாய்  
சராசரியாக வாழ நினைக்கிறேன்...  
சிரித்துக்கொண்டே சாக நினைக்கிறேன்...  
அதற்கும் வழி இல்லை என்றால்...  
நான் அழுது கொண்டே வாழ்வதா?  
இல்லை ஏக்கத்தோடு இறப்பதா?

-பா. சிந்துஜா

2017506597



என் தங்கை!!!

இமைக்கும் கண்கள் இரண்டாயினும்  
பார்வை என்பது ஒன்றானது.....  
இதழ்கள் அது இரண்டாயினும்.....  
சிறிப்பு என்பது ஒன்றானது.....  
உருவம் என்பது இரண்டாயினும்...  
உயிர் இங்கு ஒன்றானது...  
உறக்கம் அது இரண்டாயினும்...  
கனவென்பது இங்கே ஒன்றானது..  
பாதைகள் இங்கே இரண்டாயினும்..  
பயணம் அது ஒன்றானது....  
நான் அண்ணன் நீ தங்கையென  
பந்தம் என்பது இரண்டாயினும்...  
பாசம் அது ஒன்றானது....

G.Manoj Kumar  
2016506041

வானில் இருக்கும் நட்சத்திரங்கள் ஏராளம்  
அவையாவும் ஒரு நிலவிற்கு ஈடாகுமோ  
நட்சத்திரங்கள் போல் கிடைத்த நட்புக்கிடையே  
ஒரு நிலவாய் கிடைத்தது உன் நட்பு.

தர்ஷினி R (2017506516)

மடி சாய்த்து தலைகோதி கண்ணீர் துடைக்கும் உன் அன்பு கரங்கல்  
அன்று மன் சாய்ந்து மெளனமொழி மறைந்துப்போக  
கண்ணீர் மறந்து என் கரங்கலெல்லாம் முகத்தை மூடி திறந்தது  
இது கனவாகி போகாது என்று கடவுளுக்கும் வேண்டுகோள் விடுக்க.

-தாய் இழந்த குழந்தையின் நினைவு  
ரா.ராஜஸேல்வரி

# **College life: An Evergreen memory in anyone's life.....**

College is a fascinating experience and it is the time when we literally get the exposure to different kind of people. It is the time where every pampered kid, grown in his/her comfort zone enters into a plenty of possibilities. This period marks the responsibilities rooting in our minds and fantasy invading our hearts. College life also prepares us to undergo all sorts of wounds that give us the strength to heal.

The very word college is riveting and energizing to me! I need not tell you my sense of joy that got nestled in me after ad mission into MIT.

It is a place saturated with massive possibilities and this place meets out everybody's desires. A unique feature in my college is the Techno craft series(t-series).The exclusive identity of our college, the senior junior culture turns out to be productive every year ,it is simply a heart warming emotion.Tree covered college roads –is a visual bliss!!!Well, all these amenities are familiar labels for my college. Above all these happenings, the most notable life lesson I learnt is that, "Learning in life never ends". Academia, as they say never lets the students free. But my college friends differs from other college students in one aspect We learn not by any external driving force or obsession .It is truly by the our self impulse.

The greatest challenge in this phase of life is to balance our passion and creative interests with boring exam preparation.

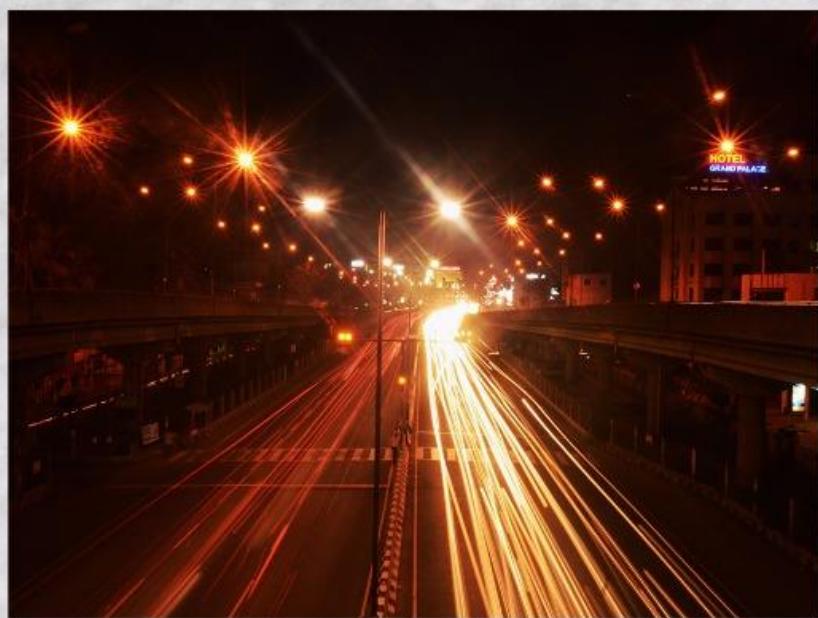
Here is a college where the cultural events, dance events and vocal events are all celebrated with great pomp and show. Also the beautiful part is that we could enjoy the presence of celebrities invited for the show .The icing on the cake is that humanitarian satisfaction after working for non profit organizations! So, after gaining the balance between learning and passion we could emerge out to be the a splendid sculpture of the society!

In a nutshell, college is a complete sphere embraced with technical and social responsibilities, undeniably a spring season in our lives!!!After years of departure from college, we all will recollect the moments that carried sentimental values, friends who were like our siblings, the unexpected road trips, mockeries canteen foods, bunks and secret plans for birthday celebrations, the adorable dogs, the stationery shop-keeper and the Xerox stores with unnoticed tears from eyes .A phase that has prepared us to be the knights in the world of battlefield!!!!

# Ingenious Photography



TECHINSIDER CLICKS



Saran R T S  
2016506075



TECHINSIDER CLICKS

# Pencil Art



Kalaivani  
2017506536



Boornachandrika  
2016506009



Tharshini  
2015506052



Poojasree  
2016611014



Ilakkiya  
2017506532

# Photography



Ashvini V Jain  
2017611001



Hari Pragadesh M P  
2017506525

# ACHIEVEMENTS

Venkata Rathnam M (2015506053)

. 1) 17th place in Cisco Networking Academy 2016 NetRiders CCENT Skills Competition for Asia Pacific and Japan

2) 1st place in the Open Innovation Hackathon for smart Villages Organised by UC Berkeley -Andhra Smart Village Projects at KL University



Devesh Modale ( 2015506065 )

1) Member of the team Neutrino which got 58th place in the 2017 ACM ICPC Asia Chennai Regional Contest held at Hindustan University, Chennai.



Vignesh R. (2015506054)

1) 24th place in Cisco Networking Academy 2017 NetRiders CCENT Skills Competition for Asia Pacific and Japan.

2) Member of the team Neutrino which got 58th place in the 2017 ACM ICPC Asia Chennai Regional Contest held at Hindustan University, Chennai.



# SPECIAL MENTION

*Congratulations  
on achieving  
new heights  
and  
setting  
new standards.*



**S.ASWIN  
(2016506009)**

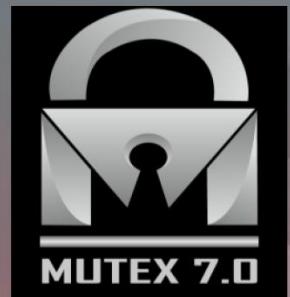


## INFORMATION TECHNOLOGY ASSOCIATION:

Constituted in the year 2001, Information Technology Association (ITA) comprises the students of the Department-Information Technology. Dr. B. Vinayaga Sundaram, Professor & Head, Department of IT, is the president of this association and Dr. Dhananjay Kumar is the advisor for the Association. Under the proficient guidance of these two mentors as well as teaching fraternity , the Association helps the students to sharpen their talents. It also gives them the support to publish their research papers in prestigious academic journals and helps them to travel across the globe to present them at various conferences.

## MUTEX 7.0 REPORT:

MUTEX is an intra-college technical symposium with the primary intention of focusing 1<sup>st</sup> and 2<sup>nd</sup> year students and train them to hone their technical and analytical skills. Guest lectures on personality development and leadership will be arranged and various technical activities and events will be conducted. This year 15 technical and non-technical events with an addition to one Mega Event were conducted. It span over a week's period of time . Around 750 students actively participated and won prizes worth 25,000.



## LIST OF EVENTS:

- OSPC
- OLPC
- Unbox
- Reverse Coding
- Debugging
- Code Obfuscation
- SQL Scholar
- Tech Travel
- Pursuit of Prodigies
- Code Golfing
- The Exam
- Math -O- Mania
- Google Trotter
- Photography
- FIFA



MADRAS INSTITUTE OF TECHNOLOGY

ANNA UNIVERSITY

INFORMATION TECHNOLOGY ASSOCIATION



# SAMHITA '18

PRESENTS

₹ Prize Worth **600K**

Mege Event Prize worth **40K** ₹



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