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# INELECTRONICS

## magazine

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"...discovery of a theorem in Partial Differential Equations"

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# QUOTES

“Don't be afraid to take a big step when one is indicated. You can't cross a chasm in two small jumps.”

— David Lloyd George

“There is one thing stronger than all the armies in the world, and that is an idea whose time has come.”

— Victor Hugo

“You can have brilliant ideas, but if you can't get them across, your ideas won't get you anywhere.”

— Lee Iacocca

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ISSUE #8 MAY 2015



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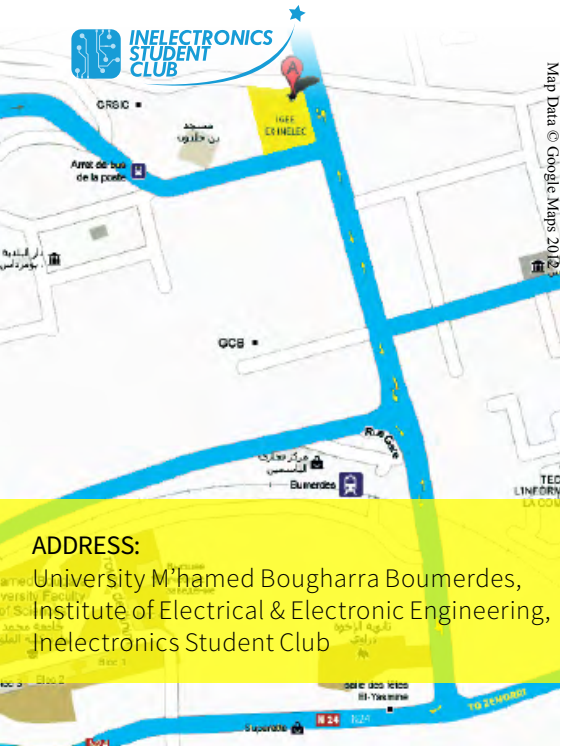


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## ACTUALITY



## TECHNOLOGY



## SOCIAL



## INFORMATIVE



# EDITORIAL

*INELECTRONICS Magazine is a non-profit student run magazine that is published bimonthly. The first issue was released on May 2010 followed by 6 other issues published over the last 4 years.*
*Our magazine is the result of the effort made by the student writers and editors of ISC who simply attempt to be of use to their university, community, and country in general.*
*In the midst of the information flood of the media, students' initiatives and achievements are no longer highlighted or given enough recognition that is why the magazine offers them the opportunity to express and share their creativity, passion, and enthusiasm.*
*In this edition, we have tried to capture this month's excitement and activities. We do hope that the magazine encourages many more students to use it as a platform to express their creativity.*
*This issue enhances our knowledge about the world's tech actualities in addition to the club activities and some INELECERS achievements.*
*Tech, social, entertaining and more, we sincerely hope that this month's edition makes for an interesting read.*
*Our words of thanks must be incomplete so that they are not a thousand lines long.*
*Giant thanks as well to the people who helped us build this issue including editors, designers, and photographers. We are proud that all of them are IGEE students.*
*Above all, thanks to our writers for throwing in with us—and to you, our readers, for making it all real, always remember our gratitude for your interest in IM Magazine.*

**IM Team**

# INJAZ 2014

Injaz el Djazair competition came back last year to Inelec. With the new set of rules, it was more exciting and breathtaking; around 40 teams have taken part in the semi-finals whose criteria were only about the best business plan and the pitching video. Ten of them have been selected for the finals with two Inelec representatives Algolive and SmartCare .The following are their stories.

## ALGOLIVE, POUR UNE BONNE RÉCOLTE D'OLIVE

**Narimene AZIZI** (L06)

**Company Mission:**
The company aims to develop the olive sector. Through the creation of this product, farmers will have a richer and more efficient olive harvest. It also guarantees the protection of the trees and the users.

**Services marketed:**
The company has a single production unit, which aims to produce a single product; it will be sold to olive farmers.

**Our values:**
Quality, innovation and respect the protection of the environment and the integrity of individuals.

AlgOlive is a junior enterprise created under Injaz el Djazair program. It operates in the field of designing and manufacturing of an electric agriculture product. We aim to offer our customers (farmers), new means that will enable them to fulfill their olive harvesting Process more easily, and with a minimum amount of time and risks.
AlgOlive is composed of a group of 22 students' entrepreneurs. All of which are enrolled at the institute of Electrical and Electronic Engineering (formerly INELEC) of the University of Boumerdes.

The company's basic structure is composed of four main departments: Human Resources, Production, Finance and Marketing. After discussing the common problems during the olive harvest; we found that our farmers were in a dire need for a solution that can reduce or even eliminate the risks on their health during the harvesting period. That is why we thought of a handy device that can shake the branches and take down the olives, but without damaging the leaves or branches. And more importantly, with less effort and time spent.
Our company named AlgOlive, started its production through the provision of farmers. Which is a completely new system in Algeria, it will allow them to harvest olives with an outstanding performance and in less time than the traditional methods.
This electrical appliance is completely handy and easy to carry. It has powerful vibrations that will take down the olives without damaging the olive tree, thus it presents an incomparable advantage which will facilitate the selling of the product later. ■


AlgOlive product

## SMARTCARE, A LIFE-LONG INVESTMENT

**Hocine AMIROUCHE** (L06)

It all started with a meeting of some students, most of them were strangers to one another and everyone was there for some purpose. Yet, with time, all purposes were unified and boiled down into one unarguable motto '' live it or leave it ''. 25, was the number of students on the plane that was ready to take off to one of the most promising trips that a student could ever live. A cornucopia of ideas was the antecedent of the birth of our project, « SmartCare » which was about a smart medicines box that reminds its users to take their medicines at the right time and with the right number of dozes. It is primarily contrived to help people suffering from chronic diseases to minimize the risk of not taking their medicines accurately. After attributing tasks and committing to a little hard work, we managed to implement the idea, develop the business plan and organize everything necessary for this competition. It was not an easy task, but whenever the amber of our desire tends to dwindle, there were always some people who light it again and get us back on the rails. Despite of being disciplined, unfortunately, it was not adequate to get the jackpot as we haven't been selected to be the best, but with a very objective conclusion we can ascertain that it is not about winning. The winning thrill would ultimately vanish but what you retain form this experience (with its advantages and shortcomings), is a life-long investment that will never fade away. ■


SmartCare Product


Best commercial video award- SmartCare

IGEE(Ex:INELEC) Final teams

# SECTIONS

**CRAX** started activities early this year, introducing a workshop of Logo Design, followed by a series of a couple workshops in Adobe Photoshop, After Effects to get members familiar with practical design.

This year the **languages** section is very active, new languages have been added. Members of this section, both instructors and learners, are students at INELEC. The instructors are excited to teach the languages they master, and are delighted by the presence of others who are interested in learning and discussing their love for languages.
German was the first language added as a subsection this year. Two sessions have been held so far, covering the basics of the language.
Korean language was also added as a new subsection. Sessions will start next month covering basics of the Korean language.

In the **English** subsection, a debate will be held next month. The team has been already been chosen. The topic of the debate will be:
“Will democracy bring a realistic solution to the Palestinian case?”

**OpenCode** section has been very active; many meetings took place last month. The main highlights were workshops and presentations on Linux, HTLM5, and CSS3.

**Social and cultural** section had an update this year. A new activity was added to this section, named “Read it… Swap it.” Aiming to introduce the readers and bookworms to each other, and get them to exchange books and discuss them.

# 2014 HIGH TECH PRODUCTS REVIEW

Abdelkader SELLAMI(L06)

A lot of high-technology products, smartphones and wearable come out each year and 2014 was clearly no exception. The year of 2014 has come out with a lot of new and crazy-looking smartphones, new companies also have entered the smartphone market with the new features they added in their products. In this article we are going to make a review and list the best hightech products in each category on both local and international markets.

## 2014 LOCAL HIGH TECH REVIEW:

In 2014, Condor, the only local company in the smartphone market in Algeria, has made a huge buzz with their new smartphones and tablets, cheap products with somewhat high performance. We are going to showcase the best and latest phone/tablet which were made by condor in 2014.

### C8s:

The new smartphone lunched by condor in the 11 th edition of Med-IT in 22 December 2014, Algiers. Condor C8s, 5" display with gorilla glass3, the thinnest smartphone in the world with 5.5mm and weight 130 g, a 1.7GHz Octa Core processor, 2Go ram and 16Go storage, 13MP camera and 5MP as secondary camera, 2300mAh battery and it Comes also with the android kitkat 4.4.2 operating system. You can get it in both black and white colour.
The problem in this smartphone is: it has a big display, a small battery (2300mAh battery is not enough for a high performance smartphone) and a weak processor too.

## 2014 SMARTPHONE REVIEW:

### The Best large smartphones:

### GALAXY NOTE 4:

It has a 5.7 inch quad HD AMOLED display with gorilla glass 4, a 3220mAh huge battery with an excellent camera (16MP, optical image stabilization, auto-focus), it takes 4K (2160p @30fps) video. Quad core CPU with 2.7GHz and Adreno 420 GPU, 32GB storage and 3GB of ram It has a multi-tasking capabilities Comes with the Android Kitkat 4.4.2 with the possibility of upgrading it to Lollipop, a lot of features that can allow you to use the huge display, and it has a styles the S-pen for more multi-tasking. It is a complete huge smartphone you can get.

### The best compact smartphone:

### SONY XPERIA Z3:

With a 5.2 inches display, dust and water proof resistance over 1 meter and 30 Minuit, a Quad core 2.5GHz QUALCOMM CPU and Adreno 330 GPU, internal storage of 16/32GB and 3GB ram. A high performance camera with 20.7MP and a 4K (20160p @30fps) shooting videos. Comes with android kitkat 4.4.2 and you can upgrade it to 5.0 lollipop.

### The Best camera smartphone:

### IPHONE 6 PLUS:

With the whole new technology added by apple to the camera (image processing and optical stabilization), IPhone6 plus has the best phone camera, it has a large sensor and pixel size, it has an 8MP camera that does mean that it has a very good low light performance, a very fast camera and produces the most pleasing and accurate colour from any smartphone camera. Unfortunately the 8MP does limit the videos to 1080p, and that where the Samsung galaxy Note4 steps in with the possibility of shooting 4k video.

### GALAXY NOTE 4:

If you like to take videos on your phone, the Note4 is the best choice for shooting videos, with the possibility of shooting 4K (2160p) videos from a 16MP sensor, it takes great photos as well. The bad side is that the Note4 photo tends to be much more saturated and sharpened which you may not like too much. So if you are more focusing on taking picture then the IPhone6 plus is the best solutions, but if you tend to take more videos then it is recommended to use the Galaxy Note4.
And we also mention the XPERIA Z3 with the 20MP camera developed by SONY and it is capable to take a 4K video as well too.


C8s


GALAXY NOTE 4


IPHONE 6 PLUS


SONY XPERIA Z3

## The Best cheap smartphone (under-budget) :

**ONEPLUSONE:**
It is an excellent phone in everything, the build quality, the high performance (a very good camera and very nice and big display). OneplusOne , a Chinese phone developed by Cyanogenmod company in china, it has a 5.5 inches display (1080*1920 pixels) with gorilla glass 3, a Quad-core CPU : 2.5GHz Qualcomm snapdragon and Adreno 330 GPU, internal storage up to 64GB and 3GB of RAM. A 13MP camera with a 4k shooting video (2160p @30fps) and a secondary camera of 5MP (1080p @30fps), a 3100mAh huge battery.it comes with the Android Kitkat 4.4.2, it is a very good phone in a lot of ways. The only problem is that you cannot really buy it yet, even from internet it is really hard to get it and you have to go through some invite system.

## The unusual (crazy looking smart phones) :

**SHARP AQUOS CRYSTAL:**
With a 5 inches display, a quad core 1.2GHz by QUALCOMM snapdragon, internal storage 8GB and 1.5GB of RAM. 8MPcamera and shooting 1080p@30fps videos. Running under the Android OS 4.4.2 Kitkat. It may look that this phone is not such a powerful phone with high performances but the big change that Aquos has done in this phone is the design ,they made a new whole look in the design that anyone can't do it with the zero bezel display, and a massive chin. And also with the new technology added by Aquos, as you can see the microphone, the speaker and the camera are all down in the chin of the phone, so whenever you get a call you can put you ear at any place in the screen and hear normally, and this new technology and design took the smartphone challenge to a whole new level.

## The worst smartphone:

**AMAZON FIRE PHONE:**
A 4.7 inches display with gorilla glass 3 ( front and back), a 3D dynamic perspective with a ( 4 front camera), it has a Quad core 2.2GHz from QUALCOMM snapdragon, internal storage 32/64GB and 2GB RAM, 13MP camera and 1080p@30fps shooting videos, running on Amazon Fire OS 3.5 As a whole package the phone has a very nice performances but it didn't get a lot of buzz and people didn't find why they should buy it and it is a really expensive phone, the whole 3D dynamic features that amazon added didn't work as well, and a lot of people find it not an interesting smartphone, but I am curious to see what amazon is going to change and add in the future smartphone.

## The best overall smartphones:

In this section we are going to mention other smartphones that are the best in overall aspect from build quality to performance,one of the best 2014 phones is:

**HTC ONE M8:**
A full, powerful and a really nice piece of art made by HTC, from the camera to the processor, and the new design and the metal all around the corners of the phone, the boom sound with the Beats sound system, a complete smartphone built by HTC. And we also mention in the same category the new MOTO X 2014, one of the first phones running under android 5.0 lollipop. IPhone6 and LG G3 all as some of the best smartphones you can get.

## 2014 wearable (smart watch) review:

2014 is the year not just of smartphones but also wearable (smart watch), physically attached to your body in a high fashion design. A lot of companies started working on developing their own smart watch and they were pretty much successful. Motorola the new company entering the market with their new smart watch. In this section we are going to see the best wearable of 2014:

**MOTO 360:**
Announced back in March, Motorola's Moto 360 is undoubtedly one of the best wearable devices of the year. The Android Wear flagship is the first device of its kind to effectively blur the lines between a smart watch and a regular mechanical timepiece in terms of design. We call the Moto 360 an Android Wear flagship for a good reason. The gadget is the first and will probably remain the only smart watch developed with direct input from the search giant. Motorola only recently changed ownership from Google to Lenovo. Moto 360 is unique not only because of its appearance, but internals too. It has a 1.56 inch display with gorilla glass3 with almost zero bezel, it has a Texas instrument chipset with 512 Ram and 4GB internal storage, a 320mAh battery rated at a fully day of mixed usage. You can find it in a metal version for a premium feel and look. ■

HTC One M8

OneplusOne

Sharp Aquos Crystal

Amazon Fire phone

MOTO 360

# WOULD NANOTECHNOLOGY BE YOUR NEXT DOCTOR?

**Zohra RABIA** (L03)

**Nanorobots or (nanobots or nanoids) are typically tiny devices range from 0.1-100 micrometers and constructed of a nanoscale or molecular components. Another definition of the nanorobots is: "a robot which allows precision interactions with nanoscale objects, or can manipulate with nanoscale resolution".**

According to this definition macro-scale robots or micro-robots which can move with nanoscale precision can also be considered nanorobots.

The use of nanotechnology is in the research and development phase. While much speculation has been published on possible far-future applications of nanotechnology using advanced materials and manufacturing techniques, relatively little has been published on applying existing engineering technology to the problems in order to create a solution that can be incrementally improved as the technology becomes available.

Most of nanorobots researches are dedicated to solve some medical issues such as:

- Tumors
- Arteriosclerosis
- Blood clots leading to stroke
- Accumulation of scar tissue
- Localized pockets of infection
- Others

The first to propose the idea of treating using nanorobots was the physicist and Nobel Prize winner Richard Feynman, "You put the mechanical surgeon inside the blood vessel and it goes into the heart and 'looks' around," Feynman said, "It finds out which valve is the faulty one and takes a little knife and slices it out."

Imagine a swarm of microscopic robots, so tiny particles that are ready to be injected in your body. A teaspoon can hold billions of them.

Their basic role is to deliver drugs with extreme precision or work like an army of nano-surgeons to treat the specified target-organ. Not too long ago this was mere science fiction, but not anymore at

ETH Zurich, the Swiss Federal Institute of Technology, mechanical engineer Brad Nelson and his team have worked on nanobots for a decade, and are now ready to think big and present a new technology to the world: "We're making microscopic robots that are guided by externally generated magnetic fields for use in the human body," he told CNN.

## How does the nanorobots work inside the matter?

According to the research made by the scientist Brad Nelson in ETH Zurich, the nanobots have already been tested "in vivo" in an extremely delicate environment, the eye. They can swim through the vitreous humor -- the clear gel that fills the eyeball -- and delivers drugs in the retinal area to treat age-related diseases

The way the robots are made is very special, the robots should be made in "clean room" environment to keep them sterile, much in the same way as computer chips, safety is number one in the work of making the nanorobots because in this case we are dealing with the human body.

The results of the test were very positive and Nelson says that the test have also inspired other potential applications, such as the treatment of heart conditions.

In this case a catheter - 2 to 3 millimeters in diameter - will be used to reach the specific part of tissue that needs to be treated. This technique could also be used to treat other parts of the body such as the brain and the heart and other small organs.

How will surgeons operate with nanorobots?!

Nelson explain that the team who will use this technology will need to master the use of this micro particles: "They would need training to learn how to use them," says Nelson, "but it's kind of an intuitive interface, and the nanobots would be guided with a joystick."

According to Nelson this technology is ready to be used next year in clinical tests on human patients.

Nelson added that this technology applications are more large and vast: "More recently people in the field have been looking at other applications like water treatment or environmental cleanup, where you might be able to operate hundreds, thousands, millions of these devices and have them swim through polluted water, catalyze pollutants, and then collect them back," he says.

Years ago this technology was just a dream and now with the hard work of scientist from different institutes and universities, mankind have the ability to develop robots to treat our body. ■

# HOW NANOMEDICINE WORKS

Nanomedicine works by *injecting nanoparticles* into the body

**CAN BE USED TO:**

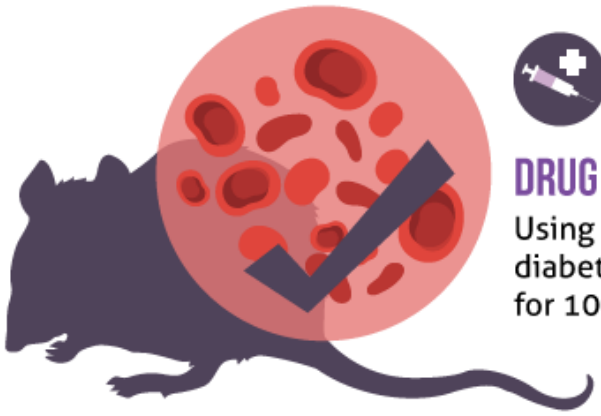
- Deliver medicine
- Find and treat disease
- Repair damaged cells

One human hair is approximately **80,000** nanometers wide

nanoparticles are between **1 and 100** nanometers in diameter

# APPLICATIONS OF NANOMEDICINE

Nanotechnology is already commonly used in sunscreen and to make **tennis balls more bouncy**

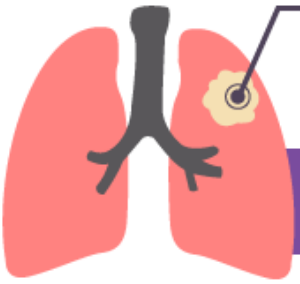


## DRUG DELIVERY

Using nanotechnology to deliver medicine, diabetic rats kept stable blood sugar levels for 10 days after injection

## CANCER DIAGNOSIS AND TREATMENT

- Using microRNA from a patient's blood plasma and nanotechnology:



Medical professionals can determine if lung cancer is present...

and begin treatment the same day

- Using Nano-Therm therapy to overheat brain cancer cells helps to destroy them:

In clinical trials, those with recurrent glioblastoma survived a median of 13 months

More than double the survival rate of those who did not receive Nano-Therm therapy

## FLU TESTING

Today's flu tests are:

- ✗ Time consuming
- ✗ Inaccurate

## NANOMEDICINE GOLD FLU TESTING:

- ✓ Instant results
- ✓ Immediate treatment to prevent spreading to others
- ✓ commercial nanotech testing no more than 5 years away

# THE JOURNEY OF FINDING LIFE

## "OUT-THERE"

**Walid BOURICHE** (M03)

**After studying the planets of our solar system for decades without finding any current or past life on any of them, scientists moved to study the moons of some of these planets. Jupiter is the head of this list along with Saturn. Current scientists believe that they give conditions that allow life as we know it to exist on them.**

Finding life is still the biggest dream for most of astrobiologists all around the globe. And no one yet was able to achieve this dream. But, this doesn't mean that life doesn't exist outside planet earth (according to many scientists); but it simply means that we couldn't find it yet. And for this reason all the space agencies are in continuous race for the soul purpose of finding life in different regions of our solar system.

Mars is the planet that got the biggest slice of the research and attention (as we covered the discovery team and Dr. Melikchi in the previous edition of our magazine). But the truth is that there are other space bodies which are not planets, but followers of huge planets, that deserve the research and the attention. If we take Jupiter for example it has 66 moons or follower; and Saturn which has 62 ones. This huge number motivated the scientists to try and study some of them. And they mainly focused on three of these moons for many reasons we list for example their relatively big diameter and the possibility of finding life on them. Those three moons are Ganymede and Europa for Jupiter and Titan for Saturn.

## Ganymede:

The biggest moon in our solar system. Scientists believe that there exists an ocean of salt water 200KM underneath Ganymede capsuled with layers of ice. And there is another feature for this moon; which is that its core is of liquid iron and has a light atmosphere of oxygen and nitrogen.

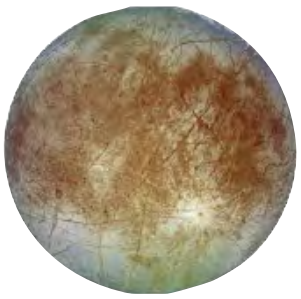
The main problem for this moon is its relatively big distance from the sun; and the enormous lack of heat and warm from our star (the sun). Some scientists think that this is not a real obstacle for the existence of life and its evolution. And they are relating this conclusion to the discovery made in 1977 by the Alvin submarine in the deepest corner of the Pacific Ocean. The submarine found a complete biological system in an environment without light. Scientists soon realize that this system is not supported by the sun's heat or its light; But with warm water and the chemical reactions. Due to the fact that these living beings were concentrated around the underwater volcanoes.

## Europa:

The sixth closest moon to Jupiter. It has a solid Iron core most probably, And many salt oceans 100KM underneath its icy surface. Its average temperature at the equator is -160°C. The next scientific expedition to Jupiter and its moons will be by the European Space Agency. They will launch a space shuttle called Jupiter Icy Moons Explorer or JUICE. The expected launch date is 2022; and it will reach its target in 2030. The tools that JUICE will carry will enable the scientist to evaluate the ability of Jupiter moons on hosting life, by comparing the chemical composition of carbon, temperature, atmospheric pressure and many other variables. Comparing these variables with the one on earth will determine if they are enough for a life to exist or not …

## Titan:

One of Saturn moons and the only one in our solar system that has a real atmosphere. This atmosphere is considered 10 times thicker than ours. And it is the only moon beside ours that a spaceship landed on its surface in 2005. That expedition provided us with a lot of information about Titan, for example that its atmosphere is composed of nitrogen methane and ethane. And now after years of data analysis and studies received from Huygens expedition; two new scientific papers were published in the Astrophysical Journal indicating that the possibility of finding



life on Titan is a bit small. We have to know first that hosting life as we know it implies the availability of three main variables: liquid water, organic compounds and a source of energy. And with the extreme low temperature degrees on Titan, water cannot exist in its liquid form; but there exists lakes of Hydrocarbons which can play the biological role of water. And for the source of energy, the thick atmosphere of Titan can hold the small energy that's come from the sun. But the results of the papers mentioned above confirm that the problem is with the third element (organic compounds) which is a carbon based matters and they are directly related to life. Scientists who conducted the analysis for the papers mentioned above affirm that organic compounds existed on Titan's atmosphere for approximately 1 billion year; which means that this duration is too short to let life exist and evolve on Titan. The question is still unanswered. Is there a life outside our planet? The next decades, maybe will carry a lot of answers, or no answers for us. ■

# HUMANS OF NEW YORK.. PHOTOGRAPHY AT ITS BEST USE!

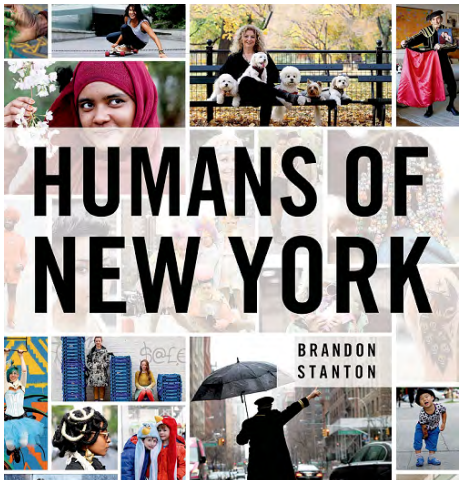
**Khalid BOUREDJI** (L06)

**In 2010, a young man moved to New York with his two suitcases, camera and one goal: taking 10 000 portraits of New York citizens! Without imagining that four years after, each one of his photos gains about 200 000 likes on Facebook, less than 10 minutes after posting it. When a great photograph and some words are combined to tell us what is behind... That is Humans of New York!**

Humans Of New York (HONY) is a photo blog that shows thousands of portraits with captions of New Yorkers. Along with the website, and the social media as Facebook and Tumblr, HONY was also the bestselling book in November 2013.

Brandon Stanton, 29 years old, the man behind this success. Studied history at the University of Georgia, and after he lost his trading job, the amateur photographer chose to follow his passion and have a new goal: taking portraits of strangers. And the best place to do that… NEW YORK!

All started in 2010, from the idea of making a map of New York using photos captured in this city. Brandon thought it would be cool to create an exhaustive catalogue of the city's inhabitants. He states that he has worked for several months with this goal in mind. Then the concept changed, Brandon tried to add more power to his photos and the way to do that was to include words. Each of his photos was joined by the person's story, Brandon says: "Humans of New York began to take on a much different character, I started collecting quotes and short stories from the people I met and began including these supports alongside the photographs"

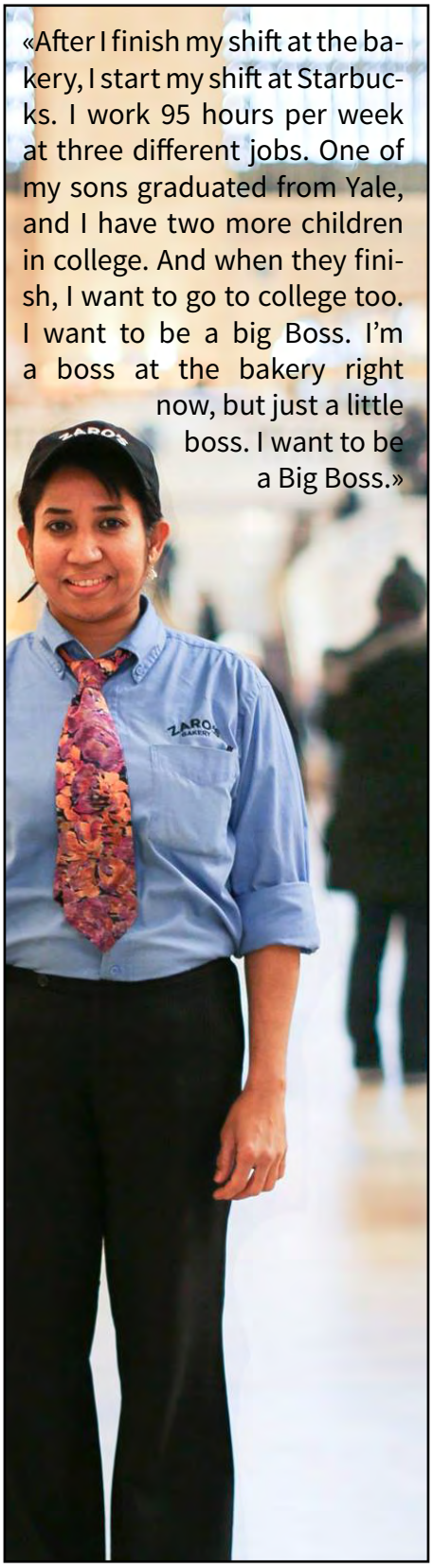




*Brandon Stanton*

> "Humans of New York began to take on a much different character, I started collecting quotes and short stories from the people I met and began including these supports alongside the photographs"

**HONY** is gaining a huge number of followers on social media, it counts more than 11 million Facebook fans, while the founder of Tumblr David Karf announces Humans of New York as his favorite part of his website, and that he is one of its biggest fans.
Humans of New York made photos into a very attractive tool to learn from strangers' life stories, to feel people only from their portraits; that's what all is photography about: living inside an image! ■



# PLANNING YOUR GRADUATE STUDIES

Ihsane DEBBACHE (Alumni)

**One of the most important crossroads in life lies right after graduation. That is the lesson I learned these past years. We are used to knowing what to do the following year, until that day where suddenly there are so many possibilities that they become frightening. This statement is particularly true for Inelec students, who usually have a broader range of perspectives. So this article aims to help prepare for when that time comes.**

First of all, it is pertinent to discern two general paths that can be taken, academic and professional paths. Even though these often cross, as in the case of companies' professional graduate programs for instance. This text focuses on the academic and research path, so it will discuss the available ways to pursue further studies and research abroad after graduation.

## Governmental Scholarships:

The best opportunities in my opinion are definitely the Governmental Scholarships, because they are usually all inclusive, meaning payment of tuition fees, housing, travel and a living stipend. Leaving the lucky recipient with only studies to worry about. In addition, these are very well organized and represent a prestigious award, as a result, they are quite selective. Some of the well-known scholarships are the Fulbright Foreign Student Scholarship to pursue a master's degree in a US university. The Chevening Scholarship for master's degrees in the UK or the MEXT (monbukagakusho) Scholarship for a bachelor, master or doctoral degree in Japan, among many others.

## University Scholarships:

These are the scholarships given to outstanding applicants by the host university. They are harder to search and to apply for, since they are spread among universities and it is required to apply for a program at the specific university and the scholarship simultaneously.

## Self-Funded Studies:

Many countries offer tuition free university studies, such as Germany, Finland, Sweden, Norway and of course France. To study in these countries means only paying for living costs, and even for that, aids are often available. Thus many students choose to pursue this road by their own means, and as costly as it may be it surely represents a sound investment. France is usually the first destination in that category, and it now offers many English taught programs, especially at a graduate level. In addition to that, Germany and Scandinavian countries are also great destinations.

## Special note on Doctoral Program:

Even though in most cases, students who graduate with a master degree from Inelec and continue studies abroad enroll at a master level, first or second year, it is still possible to enroll for a doctoral degree directly, all be it quite difficult. A doctoral student must have financing and therefore gets a salary so there are less financial issues, but the selection criteria is quite harder, and in order to go through it, I have found it is primordial to have a personal contact with the supervising professor. In other words, doctoral positions are attributed on a more personal basis than through global applications, so the first step towards applying is contacting professors directly and inquiring about eventual openings, or asking professors at the institute for referrals.

## Preparing your application:

It is important to note that to enroll in most of the programs discussed is not the result of chance or a last minute application, but it takes planning and preparation throughout the whole curriculum. But on the bright side, applications procedures are very similar, so the amount of work to apply for five scholarships is not much more than what it takes to apply for one. The best approach is to prepare all these documents in a general manner well in advance, not necessarily in relation with a specific opportunity, then it takes very few modification to adapt and apply for each. Most positions will require:

- **Academic transcripts** and **resume** in English.

• **Motivation letter, Statement of Purpose or personal statement:**
Three documents that are very similar in essence, after writing the first one, it can be used as a template for other applications, while keeping in essence the same content, i.e. outlining the reasons for applying, the relevant skills and past experiences, and why you are the best for the position.

• **Recommendation letter:**
One of the frequent reasons behind missing the deadline so these should be prepared in advance! When getting a recommendation that is not addressed for a specific program or university, i.e. addressed to whom it may concern. It is smarter to get multiple signed original copies, these will come in handy later on.

• **GRE and TOEFL Scores:**
One of the most important parts of every application. The TOEFL is required for most English taught programs, and even if applicants who pursued undergraduate studies in English such as Inelec students are often exempted, it is an advantage to have it. The GRE on the other hand is mostly required for studies in the US. But even in other cases, it is highly advised to pass it because as a standardized test, it is the same everywhere and thus can give an objective evaluation of your relative abilities to students from around the world. It is especially important since the grading system at Inelec is different and often does not give an advantageous representation of the students, so a good GRE score can help overcome that. ■

| | Fullbright - USA | Chevening - UK | MEXT - Japan | NIIED - South Korea | Swedish Institute -Sweden |
|---|---|---|---|---|---|
| **Study level** | Masters | Masters | PHD - Master - Bachelor | Master - PHD | Master - PHD |
| **Approximate deadline** | June 4th 2015 | November 15th 2014* (passed) | May 31st 2015 | March 2015 | - |
| **Apr. Nbr of recipient** | 6 - 8 for Algerians | 1500 globally in 2014 | 6 - 8 for Algerians | 2 for Algerians | - |
| **For more info** | Embassy website | Embassy website | Embassy website | Embassy website | Studyinsweden.se |
| **Notes** | Application ends in June for studies starting on August of the year after that, i.e. 14 months later. Take into account the 2 years rule of the J-1 Exchange visa. | Application currently closed, but opens in august 2015 until November 2015 for entrance in Fall 2016. | Local competition for Master and PhD level, about 6-8 awards each year. Global competition for Bachelor level, 0 to 1 awards from Algeria each year. Japanese and English test required, but Japanese level not necessary. The academic Year in Japan starts in April. | Call for application for 2015-2016 academic year is not open yet, but instructions on how to apply for the past year can be found on the embassy's website. | Closed for application starting in fall 2015. Next call in December 2015. University application for Sweden is centralized (Similarly to Campus France). It is possible to apply to up to 4 programs with same application. |

# YOUTUBE DASHBOARD

**Imad Eddine TOUBAL** (L06)

We have all come across the huge video sharing platform called YouTube, in fact some of us can not simply just open up their browser and not take a look on what's on YouTube. Or perhaps when you're trying to look up for some news, trends, or even courses and tutorials, and that makes the site the second most used search engine in the world! (After the all known google).

YouTube was created by three former PayPal employees in February 2005 and has been owned by Google since late 2006. people since then, started using the platform to share all sorts of content. With More than 1 billion unique users visiting YouTube each month and 100 hours of video are uploaded to YouTube every minute. YouTube became simply addictive. Take that Facebook.

So what makes YouTube this popular, what makes it better than other video sharing platforms such as Vimeo or Daily Motion? What makes YouTube this addictive?

One of the most obvious reasons one might think of is its very rich content. Knowing that the content itself is uploaded by individuals that use the platform, Our question should be rephrased, the question to ask is; what makes people upload to YouTube and make it their standard instead of any other platform?

The most powerful tool this platform uses is the YouTube Partners program, ever since it was launched, YouTube has experienced an enormous amount of success!

## PARTNERSHIP PROGRAM

Created in 2007, it has more than a million creators from over 30 countries around the world earning money from their YouTube videos.

Throughout the years ever since YouTube was created, both private individuals (FouseyTube, Ray William Johnson, PewDiePie…) and large production companies (VEVO, CNN, CBS…) used YouTube as a platform to grow their audience and fan base. Not only that but YouTube "Partnership Program" made it possible for anyone to earn a substantial living as a video producer, many "YouTubers" leveled up from hobbyists to people with a profession. In fact; its top five hundred partners each earning more than $100,000 annually (in theyear 2012).

## MAKING MONEY!

YouTube made it possible for a lot of people to earn money doing the things they love most, wether it's gaming, blogging, film making… and that's one of the main reasons why many people apply for the partnership program.
Through the YouTube Partner Program, you can enable your channel for monetization and your videos can earn revenue from ads on YouTube.
There are four key players in the YouTube monetization ecosystem:


- Viewers - people who like and watch your videos
- Creators - you and others like you who create the great videos on YouTube
- Advertisers - businesses looking for different ways to reach and target new or existing audiences
- YouTube - the video-hosting platform itself, helping this ecosystem to thrive

Displaying google ads on a professional content that many famous YouTubers upload makes their content not as professional.
Luckily, YouTube offers the ability to either show or hide ads, and sure enough, not displaying ads yields not earning money… not from YouTube at least. and that's where Sponsorship comes into place. A lot of YouTubers get sponsored by companies, websites or even other channels for the price of advertising their business to the audience. And that's significant because now, creators have full control of the ads they display and the way they displays them, making their content more clean and professional.
Unlike the regular partnership, getting sponsorship is not as easy, it's not something you apply for. In order to get sponsorship you need to:

- Establish an audience: get subscribers, manage contests & giveaways and upload good quality content.
- Sponsorship Application: A. Save it on a word document or pdf B. Send it to many companies C. Tell them what you're about D. Tell them what you can offer them

Whether you're new to YouTube or got some videos that are racking up views. if you'd like to start earning some revenue from all your viewers, YouTube Partners program does not only give you access to revenue-sharing, but also tools to increase your viewership. So what are you waiting for, get started, TODAY! ■

INTERVIEW WITH

# MR. OUSSAMA GUESSAB

Badreddine TERKI (M04)

**Q. How would you describe yourself?**

Like everyone, I have goals in my life, and I am working hard to achieve them.

**Q. Being one of the most brilliant students at INELEC, demonstrating astonishing academic achievements, can you tell us about how to be effective in studies?**

It is not how to be effective in studies or how to get good grades. The key is to have a clear vision with very specific goals, getting good grades is not an aim; it is a consequence of your effort to reach your main goal. If your horizon was to pass to the next academic year, you will find difficulties obtaining the needed grades to pass the year. If your aim is good grades, you will have a hard time reaching it because attaining scientific knowledge is not your objective. However, if you aspire to understand scientific concepts in a very complete manner, and you work hard to apprehend any mysterious notions, good grades will be a default consequence, because exams will merely be familiar grounds. In order to be motivated to understand the complex concepts of science, you need to have a scientific goal in your life.

**Q. You have declared your discovery of a theorem in Partial Differential Equations, Was it proven correct, or was it declined?**

Partial Differential Equations is a very large field in both mathematics and physics, my idea is to solve partial differential equations using a simple continuous method. This new method is better and more general than characteristic equation method, because the characteristic Equation method does not include complete Logical steps and it is Hard to comprehend for most learners. This new method, which I called the Relativistic Variable Conversion, is used to solve PDE equations in an easy and intuitive way, because it consists of logical continuous steps, and it does not need a broad mathematical background. My method can be taught in 20 minutes, and students can start using it directly to solve PDE.

I am sure that the Relativistic Variable Conversion method is correct and I have proven it mathematically. I use it to solve equations and results are always correct. My purpose is to publish it and know the opinion of other scientists about it.

**Q. You are majoring in the engineering field, while you have a rich background in the field of mathematics and physics; do you think engineering is the right choice for you?**

I am ambitious about understanding science, construing scientific phenomena, and grasping how this beautiful universe

> “My method…The Relativistic Variable Conversion, is correct … and my purpose is to publish it and know the opinion of other scientists about it”

works. The field of engineering is just a small field in physics. Our universe consists of two worlds, the abstract world governed by mathematical theories, and the physical world defined by the physical laws. The human mind can interact with the mathematical world by thinking and he can interact with the physical one by his five senses. If you ask what is the real purpose of engineering? Why are we studying engineering? What is the purpose of technologies? You may say,

in order to make our life easy, but in fact, our life is always easy and simple without the use of technology. In fact, technology may even complicate our life sometimes. The correct answer is to understand this beautiful universe, because engineering gives us modern approaches to interact with the universe. Enhanced satellites are implemented to study the cosmos, high-speed cameras are made to study atoms, and sophisticated devices are developed to perform complicated physical experiments to verify physical theories.
To be a good scientist, you need to handle mathematics, physics, and engineering. If you handle just one field, you will always feel that something is missing.

**Q. Why have you chosen Telecommunication as your first option, and what is your advice to students concerning the choice of options in INELEC?**

In my opinion, Telecommunication option is the widest and the most related to physics and mathematics, it handles the basic communications concepts, which need many mathematical theories and physical laws. In Telecommunication, we use Maxwell's equations; they are very interesting to me, because they are one of the best physics equations ever formulated. Telecommunication is related to physics and to modern physics:
I advise students to choose the option related to their future goals, if you are passionate about mathematics and physics, then choose telecommunications. Nothing is neither hard nor easy, but your skills make it so. Do not look for easy things because you will not find them as far as you are looking for them, look for your purpose because it will always be in front of your eyes.

**Q. Have you realized any projects or discoveries that you can share with us?**

I like the modern realities about the universe, they seem strange to us but in fact they are not, we only haven't accustomed to them yet. I believe that time travel is possible since the logical world (mathematics) does not reject it. In theory, all the physical laws show that time travel is possible but how to perform that in reality using Engineering stays a mystery. One of my goals is to use engineering to build a powerful spacecraft to surf around the universe.

> "Getting good grades is not an objective; it is a consequence of your effort to reach your main goal"

**Q. Oussama Guessab is known for his optimism, what is the secret behind your optimistic vision of the future?**

First, we have to acknowledge that Allah handles our destiny, and that he created us to worship him, and improve this world. What is the purpose of living without affecting this world positively? If we complain about problems instead of thinking of solutions, we only make ourselves sad and lazy. We need to stop looking backwards because it is not where we are headed. Confidence in Allah is essential, and is the purest confidence of all. You do not have to think about everything since the creator of this universe is helping you.

**Q. How do you face failures?**

The word failure is misconstrued; failure is success in another vision. Each time we fail, we need to pay attention to learn from this failure, we pause to analyze our environment and ourselves. Failures teach us more than successes; every failure may show us keys that will get us closer to a success.

I think about my goal at the instant of failure, then I do my best to realize it. I pray to Allah to make this easy for me, and I always remember that we are destined to face difficulties, we cannot change what has passed but we can decide our future. Keep in mind that if there was no failure, the word success would have no meaning, and that failure is a way to success. The only way to avoid failure is to have no goals in life, or to give up on the ones you have.

> "Classical Physics= Newton Mechanics+ Maxwell's equations
> Modern Physics= Einstein Relativity+ Quantum Mechanics
> Einstein Relativity ϵ Maxwell's equations"

Failure is normal and it is the beginning of the success.

**Q. Could you tell us more about your life? (Or extracurricular activities)**

I am from the Wilaya of DJELFA, I have always loved mathematics and physics since childhood. In my spare time, I read books about psychology because I find this field very interesting. I like praying in mosque, and reading Quran, and I like to help other people because success is also bringing a smile to other people.

**Q. Oussama was one of the participants in a Global mathematics competition. Can you tell us more about it? And how would you judge your performances there?**

International mathematical Olympiad is a competition to test the ability of students about how to deal with highly complicated mathematical problems. A rich mathematical background is not required, the posed problems contain simple mathematical realities that everyone know, but they laid out in a very complicated manner. To solve those problems, you need to be patient and a lover of mathematics; you need to build your method and all steps on your own. This is the challenge and it is enjoyable.

I was in a competition organized in Germany, I have met students from different

regions in the world, and each one had his own ways of thinking to handle mathematical realities. I have learnt a very important lesson: no matter how broad the knowledge you have, there is another person in the world who knows more than you do. Our effectiveness in this world is determined by our future goals, not by the amount of knowledge we have. Knowledge is unlimited and you cannot attain it all, even if you live forever, but the knowledge required to reach your goals is bounded and you need to obtain it all.

**Q. What are your career goals?**

My career goals are: To build the spacecraft and to publish books about math and physics.

**Q. What is your advice to students?**

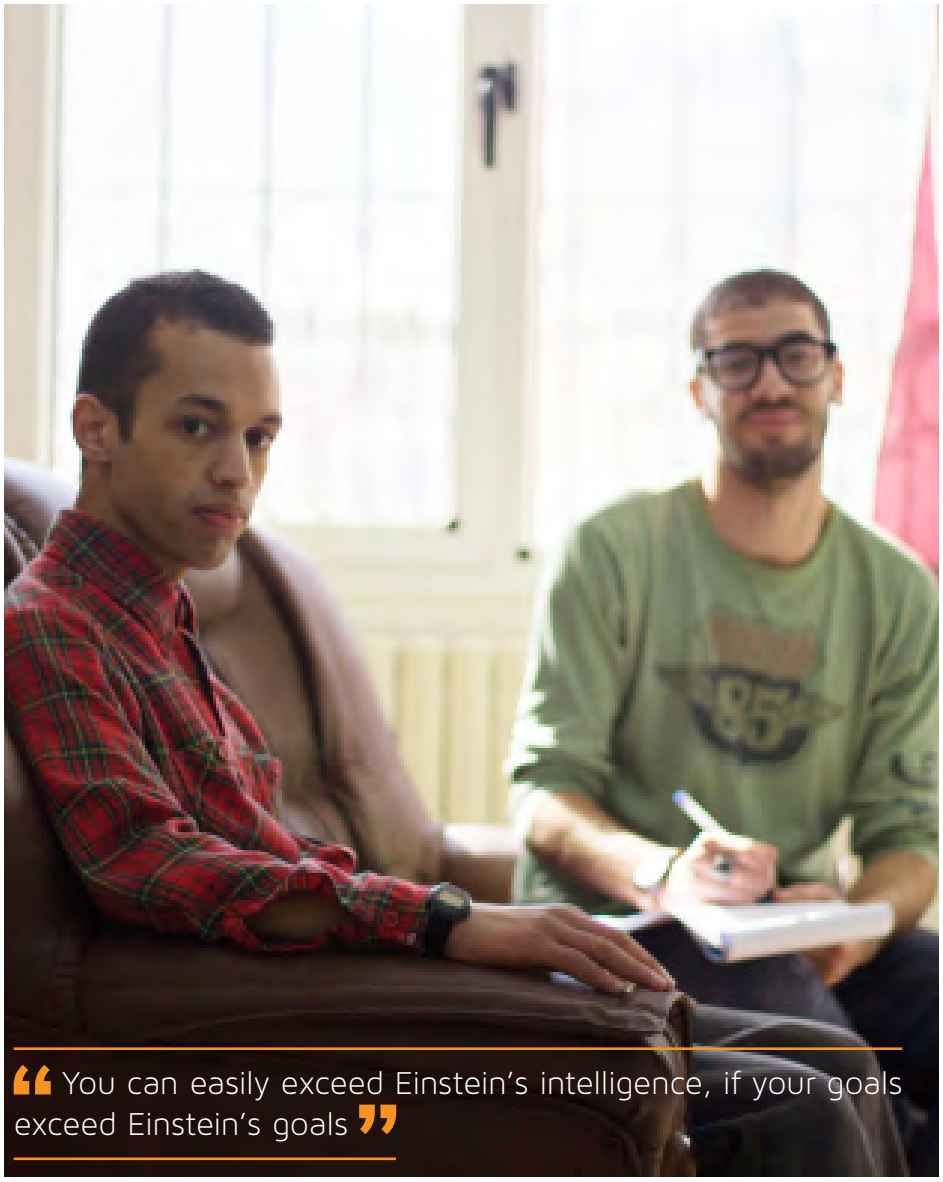
You have to realize that school is not life; studies are a path that lead you towards reaching your goals. The feeling of helplessness or inability to overcome hardships is not related to the situations, it is a positive reaction from our mind to let us know that we need to learn new skills. You have to realize that the intelligence is not a genetic property nor it is related to specific people only. Intelligence is the set of skills that we learn and develop in our daily life. Always focus on improving and expanding your skills, and know this: you can easily exceed Einstein's intelligence, if your goals exceed Einstein's goals. Keep in mind that you are not alone in this world, so do not make your goals just for you, try to help people.

Most importantly, always remember that this life will end eventually. You must work hard to make all your goals follow what Allah ordered us. Because this life is just a big exam, if we work well in it we will get heaven. The challenge is to be happy or sad in the real life, which is the afterlife (ALAKHIRA).

**Q. Do you have any final words you would share with us?**

Do not give up, because any problem has a solution no matter how complex is the problem. The hard■ the struggle, the sweeter the victory!

> "Do not look for easy things because you will not find them as far as you are looking for them, look for your purpose because it will always be in front of your



> "You can easily exceed Einstein's intelligence, if your goals exceed Einstein's goals"

## Imad Eddine TOUBAL

**Imad Eddine TOUBAL** a 3rd year student, CRAX Team leader for 2014/2015 term, graphics designer, blogger, and a YouTuber.

Imad runs a website and a channel Visual Intelligence, creating and uploading all what concerns graphic design and digital art related articles, videos, and tutorials for beginners and advanced.

As a digital artist, Imad uses Adobe Creative Cloud (Photoshop, After Effects, Illustrator...) as well as basic text editors like Brackets for coding web design. His main focus for the time being is a really interesting software in the 3D editing industry, MAXON Cinema 4D, in fact, that's what he is known for in his previously mentioned channel, Visual Intelligence.


Visual Intelligence, has over 1500 subscribers on YouTube as well as over 2000 fans on Facebook, focuses mainly on uploading helpful video tutorials and giveaways to fresh designers that are just introduced to the software, as well as some tips and tricks for more advanced users of Cinema 4D. Generally his tutorials walk you through creating some projects from the start to the end using the needed tools.

However, Imad Toubal started his journey as a digital artist and graphic designer over 2 years ago and Visual Intelligence is only one of his projects that he believed was successful. He owned another channel before with the name "AaAttention" with over 2000 subscribers, AaAttentionn used to create the same type of content, but it was taken down by YouTube for audio content copyright issues.

Imad was featured before in some 3D editing and VFX related websites such as 3DTutorials.net and CG Terminal for his tutorials, as well as in Unity3DMag magazine for his "Low Poly" Artworks i.e. "Low Poly Neighborhood" that will also be featured in Behance Portfolio Reviews Algeria 2015 during Fikra event.

imadtoubal.ga
visualintelligence.tk
@imadToubal
@VIGraphics

## Meriem Hajel

**Meriem Hajel** is one of those multitalented people that you rarely come across in life. She started expressing her passion in art with comic books, and then moved towards cuisine and pastry. Making edible art-pieces is easier when you are a talented sketcher. “Pastry is also an art!” she says.

For Meriem, or Mery as she is called, cuisine is all about sharing. Her art is to make people happy, “I make these cakes to make people happy.”

If you are stressed about school and exams, learn cuisine! Mery admits that cuisine helped her blow off steam. Check out her website to learn more about it all.



merycuisine.com
facebook.com/ merykitchen
mery cuisine

## Brain Games

1. *Fill the empty squares by the letters from A to I with the following conditions:*
   - *Each letter should not be repeated in the same row*
   - *Each letter should not be repeated in the same column*
   - *Each colored square should contain all the letters from A to I*

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| | | | B | | E | | | |
| | | F | D | | C | □ | | |
| C | | | | □ | | | | □ |
| | □ | B | | | | D | □ | |
| □ | | | | | | | | F |
| | C | E | | | | □ | □ | |
| D | | | □ | | | | | C |
| | | □ | □ | | □ | F | | |
| | | | E | | D | | | |

2. *Unscramble the words.*

**1. ccaarotip** _____ **5. ruitcic** _____

**2. oddei** _____ **6. atnsrisort** _____

**3. rneuctr** _____ **7. octecelsrin** _____

**4. eatlvgo** _____

3. *Find the maximum words you can using the following letters, each word should contain the middle letter.*

| | | |
|---|---|---|
| C | A | P |
| A | C | I |
| T | O | R |

## Answers

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| A | I | G | B | F | E | H | C | D |
| E | H | F | D | G | C | I | B | A |
| C | B | D | H | I | A | E | F | G |
| F | A | B | C | E | G | D | H | I |
| G | D | I | A | H | B | C | E | F |
| H | C | E | F | D | I | G | A | B |
| D | E | H | G | A | F | B | I | C |
| B | G | A | I | C | H | F | D | E |
| I | F | C | E | B | D | A | G | H |

1. table

2.
1. Capacitor 5.Circuit
2. Diode 6.Transistor
3. Current 7.Electronics
4. Voltage

3. 9 letter words: 1. capacitor
7 letter words: 1. apricot 2. carioca 3. parotic
4. tapioca
5 letter words: 1. acari 2. actor 3. cacao 4. cacti
5. carat 6. carpi 7. circa 8. coact 9. coati 10. copra
11. coria 12. croci 13. optic 14. picot 15. topic
4 letter words 1. capo 2. carp 3. cart 4. ciao 5. coat 6. coca 7. 12. pact 13. pica 14. taco

## Idioms

1. **A penny for your thoughts:** A way of asking what someone is thinking.
2. **Actions speak louder than words:** People's intentions can be judged better by what they do than what they say.
3. **At the drop of a hat:** Meaning: without any hesitation; instantly.
4. **Back to the drawing board:** When an attempt fails and it's time to start all over.
5. **Ball is in your court :** It is up to you to make the next decision or step.
6. **Barking up the wrong tree:** Looking in the wrong place. Accusing the wrong person.
7. **Beat around the bush:** Avoiding the main topic. Not speaking directly about the issue.
8. **Best of both worlds:** Meaning: All the advantages.
9. **Best thing since sliced bread:** A good invention or innovation. A good idea or plan.
10. **Bite off more than you can chew:** To take on a task that is way to big.
11. **Blessing in disguise :** Something good that isn't recognized at first.
12. **Burn the midnight oil:** To work late into the night, alluding to the time before electric lighting.
13. **Caught between two stools:** When someone finds it difficult to choose between two alternatives.
14. **Cross that bridge when you come to it:** Deal with a problem if and when it becomes necessary, not before.
15. **Cut the mustard [possibly derived from "cut the muster"]:** To succeed; to come up to expectations; adequate enough to compete or participate
16. **Every cloud has a silver lining :** Be optimistic, even difficult times will lead to better days.
17. **Last straw:** The final problem in a series of problems.

# PARADIGM SHIFT FROM WAR TO PEACE

Lyes KHACEF (L06)

**We, human beings, have a special gift: our ability to innovate and to create. We have a long history innovation, and it can inspire us to look back at how we change d our ways of perceiving the world we live in.**

In almost every society and culture around the world we have traditionally believed that illness, sickness and disease were the result of God's will, and you could be put to death for trying to study human anatomy, as it was seen as devil worshiping. Today one of the best things you could do is be a doctor. Today we can talk and see each other from different continents, we have made ourselves able to fly, and we will soon be visiting another planet, things seen as impossible a few hundred years ago.

All of these have involved Paradigm Shifts. Changes in our ways of understanding and seeing the world, from what we assumed was the necessary unchangeable God-given way of things to be, to recognizing that something else is possible. Paradigm shift is a change from one way of thinking to another. It's a revolution, an innovation. Paradigm Shifts don't just happen, they happen because people make them happen. They are driven by agents of change.

Paradigms are the mental maps that we use to describe the world around us. We can take as an example a person trying to find his way through Boumerdes with a map of Algiers. No matter how hard he tries, he will never be successful. In the same way, when we have erroneous ideas of what something is like, we are destined to fail in dealing with it, no matter how. We should work on having correct and healthy understandings of the world around us, and a paradigm shift is when we abandon an incorrect paradigm for a correct one. The key to maintain correct paradigms is to keep an open mind and realize that however much we see, there is always more to the picture.

We have many examples of paradigm shifts: from the belief that the world is flat and actually killing and imprisoning people who said it was round, to finally recognizing that it is round. From the Newtonian physics to relativity and quantum physics. From seeing women as a property to women as human beings with human rights. From "Divine Rights" for kings to rule, to human rights. From "There's nothing we can do" to "Yes we can", to "Be the change you want to see in the world".

How does this link to war? Like all the other false paradigms, many people

believe that war is inevitable, that there is nothing we can do about it, and that it is part of human nature. But the truth is: war is not necessary, war is destructive, and we need to find alternatives. We need peace.

"Peace is not absence of conflict, it is the ability to handle conflicts by peaceful means" — Ronald Reagan. Conflict is an inevitable part of human relationships. However, depending on how it is approached and managed, conflict can be either constructive or destructive. Conflicts and violence are not the same thing. Violence is what happens when we systematically fail to deal with conflicts effectively. Violence is not only happening in wars around the world, it is also present inside our communities, in how we speak to each other, and unfortunately home as well.

Many of us think that there is no such thing as peace. This is a wrong idea, because peace is a practical reality. It is as real and available to us as health, and the same way that few centuries ago we believed that illness and sickness were inevitable but today we train nurses and doctors, we can also train people to deal with conflicts in a peaceful way. "An eye for an eye only ends up making the whole world blind" — Gandhi, Martin Luther King, Rosa Parks, Nelson Mandela… We have an amazing breath of knowledge from historical peacemakers about how to deal with conflicts, but we need to make the choice to say that it is worth learning it. If we want to have a shift, it has to come from us.

Smallpox, the number one killer in history is an infectious disease. Totaling over 500 million people dead, more than all of the wars in the world put together. It was believed by many to be the biblical plague. Nevertheless, in 1967: there were 34 countries affected, in 1970: 18 countries, in 1974: 5 countries, in 1980: Smallpox eradicated! How did it happen? It happened because people decided to do something about it. We committed our human and scientific resources to overcome one of the greatest challenges and sicknesses that had faced us, something that for centuries we thought there was nothing we could do about, that "it is just the way it is".

> "Peace is not absence of conflict, it is the ability to handle conflicts by peaceful means." — *Ronald Reagan*

The United Nations created the largest campaign in UN history: 150,000 doctors, nurses and medical volunteers from all over the world, from every race, religion, culture and nation to fight side by side, with each other, not against each other. They came together in a common effort and helped to beat Smallpox, in a common cause to make the world better.

It's our turn to do so. This is about making a choice. It is about asking ourselves: what is the type of world that we want to live in? "Peace cannot be kept by force; it can only be achieved by understanding" — Albert Einstein. This is the paradigm shift we need to make, and we will, eventually. But how many men, women and children should be killed until then? We decide. It is our choice. ■

## PEOPLE WHO HAVE PROMOTED WORLD PEACE:

**Nelson Mandela** (1918 –2014) made significant contribution to peace in South Africa. Although imprisoned for fighting apartheid, he was released and became first democratically elected President. Mandela sought to forgive and work with the former white minority. Mandela became a global symbol of goodwill and how people can make a real contribution to peace. Awarded Nobel Peace Prize in 1993 (jointly with F.W. de Klerk)

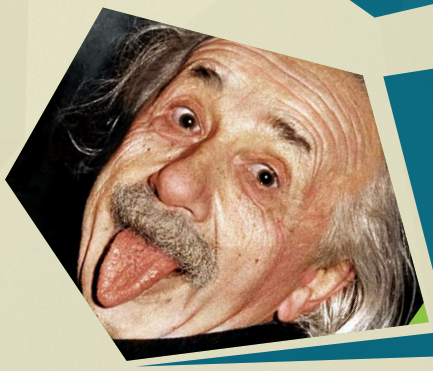
**Mahatma Gandhi** (1869-1948) Inspired Indians to independence through a path of non-violence. To Gandhi, the road to the goal was as important as the goal itself.

**Martin Luther King** (1929 – 1968) Non-violent civil rights leader. King promoted an end to discrimination through an inclusive philosophy of non-violent protest and mutual co-operation. He also spoke out against the Vietnam war.

**Muhammad Ali** (1942- ) When Ali refused to fight in Vietnam, it was a controversial decision which cost him his professional boxing licence. However, Ali's principled stance was increasingly appreciated as the war became more unpopular.

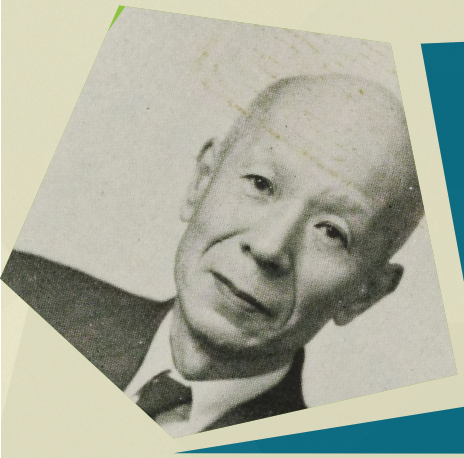
**Malala Yousafzai** (1997 – ) Pakistani schoolgirl who overcame assassination attempt by Taliban to campaign for universal access to education. Youngest person to win a Nobel Peace Prize in 2013.

# DID YOU KNOW?



**Einstein** received the Nobel Prize for Physics in 1921 for his explanation of the photoelectric effect, the phenomenon by which electrons are knocked out of matter by electromagnetic radiation such as light.

In 1901, the Spanish engineer **Leonardo Torres-Quevedo** was responsible for the earliest developments in the remote control with his Telekine that was able to do "mechanical movements at a distance."



In their Miyagi, Japan laboratories, beginning in 1924, Professor **Hidetsugu Yagi** and his assistant, Shintaro Uda, designed and constructed a sensitive and highly-directional antenna using closely-coupled parasitic elements. The antenna, which is effective in the higher-frequency ranges, has been important for radar, television, and amateur radio.


On 9 June 1906 the **Winnipeg Electric Railway** Co. transmitted electric power from the Pinawa generating station on the Winnipeg River to the city of Winnipeg at 60,000 volts. It was the first year-round hydroelectric plant in Manitoba and one of the first to be developed in such a cold climate anywhere in the world.

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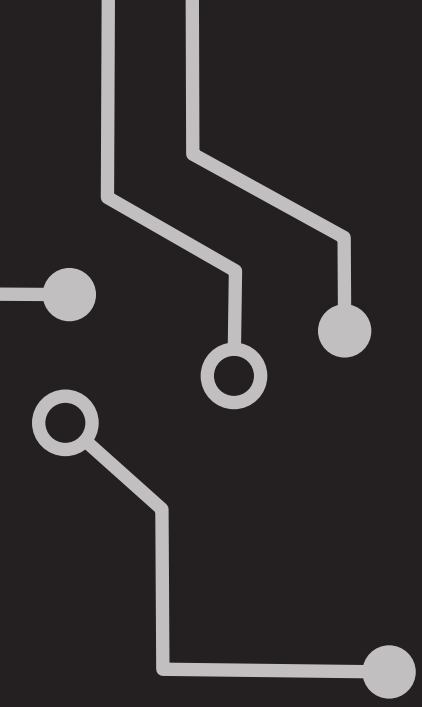

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