

**Title****AI and Cybersecurity: Partners or Adversaries?****Author**

Adel S. Elmaghraby  
Professor and Chair  
Computer Engineering and Computer Science  
University of Louisville, Kentucky, USA

**Abstract**

The exploding trends in cybersecurity attacks, breaches, and in incidents reported comes as no surprise to most professionals in this field. The rapid technological advances that have been considered a blessing for business and individuals are the same reasons these attacks have been growing. Improved computational power, better software tools, high-speed networking, and social networks are the foundations that enable attackers to be more efficient and better organized. Therefore, the issue has become a race between attackers versus designers and defenders in leveraging new technologies.

A complicating factor in the cybersecurity landscape is the involvement of nation states or their proxies as players in this game because of the resource imbalance that provides. However, the game changer that is in our horizon is the use of artificial intelligence and deep learning as the tools for adversarial behavior. These tools and approaches are already in use and the arms race between both sides has begun. In this presentation, we shall expand on the historical, theoretical foundations of these issues with a foresight into our future and guidance on charting our path.

**Title****The Future of Engineering Education****Author**

Dr. Ahmed Elsayy  
Professor and Chairperson  
Department of Manufacturing and Engineering Technology  
College of Engineering, Tennessee Tech University

**Abstract**

The world is changing around us very fast! It is driven globally by exponential growth of new knowledge knitted together by rapidly evolving information and communication technologies. Moreover, the increase of human population is threatening the global sustainability and we are faced by a global, knowledge-driven economy places a new premium on technological workforce skills through phenomena such as out-sourcing and offshoring; governments place increasing confidence in market forces to reflect public priorities. Even as new paradigms such as open-source software and open-content knowledge and learning challenge conventional free-market philosophies; and shifting geopolitical tensions are driven by the great disparity in wealth and power about the globe, manifested in the current threat to homeland security by terrorism. Yet it is also a time of unusual opportunity and optimism as new technologies not only improve the human condition but also enable the creation and flourishing of new communities and social institutions more capable of addressing the needs of our society. This complex world situation created challenges to the American Engineering education. In this presentation, the following topics will be addressed: Engineering Practice, Engineering Research, Engineering Education, a Framework for Change, Transforming the Profession, Expanding the Engineering Knowledge Base, Transforming Engineering Education, and Concluding Remarks.

**Title****Ozone use for decontamination of food, water and environment:  
Research and Commercial Opportunities****Author**

Ahmed Yousef, Ph. D.  
Professor of Food Microbiology  
The Ohio State University

**Abstract**

Ozone, a triatomic oxygen molecule, has a high oxidizing power and potent antimicrobial properties. Most bacteria, fungi, viruses and protozoa are sensitive to ozone treatment. Ozone has numerous applications in its gaseous or aqueous state. These include food, water, medical and environmental applications. For example, ozone is widely used in the treatment of municipal water, as a safer alternative to chlorine. Potential food applications include sanitization of fresh produce and whole shell eggs, and decontamination of nuts and spices. Ozone is also capable of reducing pesticide residues and mycotoxins on some food products. Methods to use ozone to sterilize medical instruments are being developed. Ozone-based washers are available for cleaning and sanitizing walls and floors. At the Ohio State University, we have the most active ozone research program in the United States. The program is focused on improving the safety of food supply by developing ozone-based decontamination and sanitization methods. Under this program, a method to produce *Salmonella* free eggs has been patented and is currently in the implementation phase. Recently, a method was developed to eliminate the enterohemorrhagic *Escherichia coli* on delicate fresh produce such as spinach and strawberries. However, there are challenges that limit further spread of ozone use in other applications. Some of these challenges are due to the nature of ozone itself. Others are related to equipment that generates the gas. Well-thought designs are needed for treatment chambers where gaseous or aqueous ozone comes in contact with the treated product. Control of ozone in work environment is essential for the safety of equipment operators and other workers in the facility. These applications and challenges will be presented in detail during the meeting.

## Title

**On a New Definition of Public Health: From "Prevention of Disease" to an Advocacy for the "Right to Health and Healthful Longevity"**

## Author

Dr. Amer El-Ahraf, REHS,  
Professor of Health Sciences and Vice President Emeritus,  
California State University, Dominguez Hills  
Past President, Association of Egyptian American Scholars (AEAS)  
Past President: (US) National Environmental Health Association (NEHA)

## Abstract

The field of public health is an important field of human endeavors. But it is difficult to define. That is partly due to its nature that spans several fields from preventive medicine and law to health promotion and health restoration while addressing the root causes of health-related issues such as poverty, social justice, economic development and advocacy for a population health where every individual shares equally in common resources and responsibilities. In this paper, the author provides an analysis of three contemporary definitions of public health and their significance including that of CEA Winslow, the U.S Institute of Medicine (IOM) and that of El-Ahraf. In addition to sharing the basic and classical concepts of achieving a status healthy community through prevention of disease and promotion of health with other two definitions, El-Ahraf's new definition of public health further advocates for the right to health and healthful longevity within a safe, socially just and ecologically sustainable environment. The time has come to expand the definition of public health beyond prevention of disease where these areas of a new public health are explicitly emphasized.

In discussing key components of El-Ahraf's definition of public health, several observations can be made. While the concept of health as human right is not necessarily new or necessarily free of controversy, one must acknowledge the value of the UN's Universal Declaration of Human Rights as a forceful influence of discussions around this issue throughout the world (United Nations General Assembly. 1948); and the continuous and dismaying lack of its realization as we conclude the year of 2018-- seventy years later. And, while social justice is considered the reason for existence of public health, and ecological sustainability is an accepted principle promoted by the United Nations (Brundtland Commission, 1987), we, as a human society, remain far away from seeing these as facts on the ground specially for those living in poverty. Thus, we must continue to advocate for these principles in a new definition of public health hoping that some time in future to replace the word "advocacy" with that of "realization".

That is not necessarily a distant goal. This year, both the United Nations and Egypt declared that health and education are key objectives of their developmental plans. Egypt has already started this process with its campaign for “one hundred million health “. Both education and health, are necessary ingredients for achieving a quality of life through equitable public health measures.

Dr. Amer El-Ahraf, REHS

Professor of Health Sciences and Vice President Emeritus

California State University, Dominguez Hills

Named by the *Journal of Environmental Health* as One of the 15 Leaders of Environmental Health

**Title****Integrating the Intersection of Ethics, Technology, and Society into Higher Education Curricula****Author**

Ashraf Ghaly, Ph.D., P.E.  
Director & Professor of Engineering  
Union College, Schenectady, NY 12308

**Abstract**

In today's technologically advanced society, professionals are faced with situations that require more than technical knowledge, common sense, and good judgment. Many of the issues borne by the complexity of modern day life are not only interwoven but are also multidimensional. One of these dimensions is ethics. Regardless of the area of study, ethics is an imperative component in the building of the character and in the development of the mind of students in higher education just before they become practicing professionals. Humans are products of their environment, culture, society, religion, and norms. There are universal values that the vast majority of people in the world agree on and endorse. However, different societies have different customs and traditions that some of which may not be universally acceptable. In a world where distances have shrunk due to instantaneous communications, there is a global body of ethics that intersect with technology in a societal context that all should be familiar with. This basic body of knowledge should become an integral component in curricula taught in higher education. Students should be engaged in a way that make them critically think and rationally question issues of great complexity. Many of the ethical dilemmas one is faced with today fall in a gray area where there is no absolute right or wrong. The decision making mechanism related to resolving such complex issues requires many considerations related to the ethical situation at hand. Furthermore, the ethical issue itself could be attached to other factors of economic, political, social, cultural, or environmental dimensions. Graduates in this day and age are expected to operate in such an overwhelming environment. Having been prepared with a course of study that intersects ethics and technology in a societal context is a recipe that adds to their success. Curricula that lacks this branch of study miss an opportunity to develop in students an ability to react to situations that they will sooner or later face in their professional careers. This paper will illustrate how to incorporate models of ethics education at graduate and post graduate levels.

## Title

**Digital transformation as a lead for business opportunities**

## Author

Ashraf Salah Eldin

President High Tech Vision

Board Member of Chamber of Information Technology and Telecommunications - Egypt

## Abstract

Digital transformation is the profound transformation of business and organizational activities, processes, competencies and models to fully leverage the changes and opportunities of a mix of digital technologies and their accelerating impact across society in a strategic and prioritized way, with present and future shifts in mind.

While digital transformation is predominantly used in a business context, it also impacts other organizations such as governments, public sector agencies; universities and organizations which are involved in tackling societal challenges such as pollution and aging populations by leveraging one or more of these existing and emerging technologies. In this paper I mainly look at the business dimension. The mentioned development of new competencies revolves around the capacities to be more agile, people-oriented, innovative, customer-centric, streamlined, efficient and able to induce/leverage opportunities to change the status quo and tap into new information- and service-driven revenues. Digital transformation efforts and strategies are often more urgent and present in markets with a high degree of commoditization. Present and future shifts and changes, leading to the necessity of a faster deployment of a digital transformation strategy, can be induced by several causes, often at the same time, on the levels of customer behavior and expectations, new economic realities, societal shifts (*e.g. aging populations*), ecosystem/industry disruption and (*the accelerating adoption and innovation regarding*) emerging or existing digital technologies. In practice, end-to-end customer experience optimization, operational flexibility and innovation are key drivers and goals of digital transformation, along with the development of new revenue sources and information-powered ecosystems of value, leading to business model transformations and new forms of digital processes. However, before getting there it's key to solve internal challenges as well, among others on the level of legacy systems and disconnects in processes, whereby internal goals are inevitable for the next steps. Digital transformation is a journey with multiple connected intermediary goals, in the end, striving towards continuous optimization across processes, divisions and the business ecosystem of a hyper-connected age where building the right bridges (*between front end and back office, data from 'things' and decisions, people, teams, technologies, various players in ecosystems etc.*) in function of that journey is key to succeed.

## Title

**Eco-friendly dyeing of Silk fiber using economic method**

## Author

N.F. Ali<sup>1</sup>, E.M. El- Khatib<sup>2</sup>, R.S.R. El Mohamedy<sup>2</sup>, Sahar Galal<sup>1</sup>, N.S.ElShemy<sup>1</sup>

<sup>1</sup>Dyeing, Printing, and Auxiliaries Department, National Research Centre Cairo, Egypt

<sup>2</sup>Proteinic and Man-made Fibers Department, National Research Centre Cairo, Egypt

## Abstract

The use of ultrasound or ultrasonic energy in textile dyeing processing possesses many promising advantages. Conventional method in dyeing processes consumes a large amount of dye and thermal energy. The dyeing processing is exclusively carried out at higher temperatures. Ultrasonic dyeing is a novel technique to save time, cost, energy and provides high value of dye uptake. The aim of this study was to investigate the dyeing behavior of pretreated silk fibers with *chitosan*, then dyed with rhubarb as natural dye by conventional (HT) and ultrasonic (US) methods. Factors affecting on the dye extraction and dyeing processes such as dye concentration, temperature, time as well as pH was studied. The results indicate that fibers pretreated with chitosan leads to high color strength K/S, and fastness property than the untreated fibers. Pretreated silk fibers can be dyed at lower temperatures in ultrasonic method (US) as compared with conventional method (HT). The antimicrobial activity with some kinds of Bacteria and Fungi were tested. The results indicated that the fibers pretreated exhibit higher inhibition percent than the untreated fibers. As a result, the use of ultrasonic energy in dyeing process helps to reduce the dyeing temperature, thereby reducing the energy consumption and maintaining the product quality

**Title****The Case for Inclusive Education in Egypt****Author**

Hadeel El-Ahraf, MSIO

Adjunct Faculty American University in Cairo

MA of Special and Inclusive Education (Candidate), University College London

**Abstract**

As an advocate for those with Autism and children with other special educational needs, I view inclusive education in mainstream settings not only as a right for those with special needs, but also as a benefit to all children within the mainstream educational system. This paper will discuss the current state of inclusive education in Egyptian private schools, why inclusive education can benefit society at large and address some of the challenges to be addressed as Egypt continues to move forward in this area. Specific areas to be considered include: collecting accurate and comprehensive data; developing clearly defined legislation and compliance measures; increasing public awareness of Special Educational Needs (SEN) to combat stigma and disseminate information about current Ministry of Education policies; addressing teachers' and administrators' views of including those with SEN in mainstream classrooms; and addressing physical and pedagogical barriers to learning.

## Title

# Monocyte Chemoattractant Protein-1 (Mcp-1) A2518G Gene and Polymorphism in Chronic Kidney Disease Patients

## Author

Khadiga Abougabal<sup>1</sup>, Hanan M. Farhan<sup>1</sup>, Heba H. Mahmmoud<sup>2</sup>

<sup>1</sup> Clinical and Chemical Pathology Dept., Faculty of Medicine, Beni-Suef University.

<sup>2</sup> Internal Medicine Dept, Faculty of Medicine, Beni-Suef University

## Abstract

**Background:** Chronic kidney disease (CKD) takes an increasing position of the causes of death globally in the last two decades. The monocyte chemoattractant protein-1 (MCP-1) is a potent chemotactic factor for monocytes expressed at injury and inflammation and plays an important role in progression of different types of human renal disease.

**Objective:** The objective of this study is to investigate the association of MCP-1 A2518G gene polymorphism with chronic renal failure in some Egyptian patients.

**Methods:** In a case control study, carried out at the Faculty of Medicine Beni-Suef University Hospital, 50 subjects after taking the consent were classified into 2 groups: Group I (patients group): included 30 CKD patients under hemodialysis (17 males and 13 females) Group II (control group): included 20 healthy subjects (13 males and 7 females) matched age and sex with CKD patients. All subjects were subjected to full history taking, chronic diseases history, clinical and general examination and routine laboratory investigations in terms of (kidney function tests, lipid profile, electrolytes, hemoglobin and WBCs) and special laboratory test MCP-1 A2518G gene polymorphism analysis was performed by Polymerase Chain Reaction – Restriction Fragment Length Polymorphism (PCR-RFLP).

**Results:** There were a highly significant ( $p < 0.001$ ) increase in TC, TG, LDL-C, WBCs, urea, creatinine and potassium concentrations in patients group versus control group. However, inversely, there is a highly significant ( $p < 0.001$ ) decrease in HDL-C, Hb in patients group than in control group. The results revealed that there were no significant differences between control and patients group as regard genotype distribution, AA genotype was found in 14 cases (46.7%) versus 13 cases (65.0%) in patients and control groups respectively. AG genotype was found in 13 cases (43.3%) versus 6 cases (30.0%) in patients and control groups respectively while for GG genotype, it was found in 3 cases (10.0%) and 1 case (5.0%) in patients and control groups. AG & GG genotypes frequency was higher in patient group versus control group. AA genotype frequency was higher in control group versus patient group. A allele was 68.3% in patients group versus 80% in control

group. G allele was 31.7% in patients group versus 20% in control group with no significant differences between groups.

**Conclusion:** No statistically significant differences were found in different genotypes (AA & GG) or different Alleles (A & G) between patients of chronic kidney disease and control healthy ones. We could not determine which genotype or Allele is correlated with CKD and which one have a protective effect, but G Allele was slightly higher in patients group.

**Keywords:** Monocyte chemoattractant protein-1 A2518G; gene polymorphism; Mcp-1 A2518G; Chronic kidney disease.

## Title

# Consuming Cadmium Polluted Fish and Possible Hyperuricemic Effect

## Author

Khadiga Abougabal<sup>1</sup>, and Walaa A. Moselhy<sup>2</sup>

<sup>1</sup> Clinical and Chemical Pathology Department, Faculty of Medicine, Beni-Suef University

<sup>2</sup> Forensic Medicine and Toxicology Department, Faculty of Veterinary Medicine, Beni-Suef University

## Abstract

Cadmium (Cd) is a biological nonessential metal that can be toxic, even below permissible levels, creating health hazards in the aquatic organisms and subsequently in the human health. This study aimed to evaluate the effect of Cd exposure on tissue damage patterns of the freshwater fish and on human health of fish consumers especially kidney and bones. Previous studies have illustrated the pathogenic role of Cd exposure in renal tubular damage and bony lesion. The transition from purine to uric acid, mediated by xanthine oxidase, leads to the production of reactive oxygen species, which may be accompanied by increased uric acid production. Hence, elevated serum uric acid may be a protective mechanism against oxidative stress from cadmium exposure. Estimation of cadmium levels in their digested muscle samples were estimated using atomic absorption spectrometry. There is increase in Cd level in fish muscles of polluted farms compared to non-polluted farms. The levels of serum Cd, and uric acid in human who consumed fish from the polluted farm show elevations than non-consumed fish or human that consumed fish from non-polluted fish farms or fish from River Nile. In conclusion, regular consuming eating fish from polluted farms can add to the environmental sources of Cd exposure and subsequently hyperuricemia. Enforcement of laws that regard the protection of fish wealth must be taken into consideration. Dietary supplements play an important role in protecting against Cd toxicity than chelating therapy.

**Key words:** Cadmium; fish farms; pollution; toxicity; kidney; atomic absorption; dietary supplements.

**Title****Author**

Mohamed M. Elgamal

**Abstract**

North Carolina Global Transpark as a model for the Economic Development of Sues Canal  
Region

## Title

### Micro-alloying still a challenge

## Author

Maha El- Meligy<sup>1</sup> and Taher El-Bitar<sup>2</sup>  
Plastic Deformation Dept., Central Metallurgical R&D Institute (CMRDI)

## Abstract

The present article presents cumulative works, which were carried out in the field of micro-alloying steel processing at Central Metallurgical R&D Institute (CMRDI) and/or full scale trials in collaboration with the Egyptian steel industry.

It was agreed upon defining three main generations of processing micro-alloying steel. The 1<sup>st</sup> generation starts officially on 1975 and continue up to 1995, where it deals with using Ti and V as micro-alloying elements for steel long products. Generally, Ti was used for high nitrogen content liquid steel, while V was used for medium carbon steels. The main feature of the 1<sup>st</sup> generation micro-alloyed steel is a medium carbon contents 0.18-0.2 %, where Ti and V were used for precipitation hardening by forming Ti- nitrides and V- carbides respectively. Both precipitates hinder the dislocation movements during cold forming, which is reflected as strength enhancement of steel.

The 2<sup>nd</sup> generation was starting on late 1995 and continued to 2005. It deals mainly with low carbon content steel (0.04-0.08 %) for flat products (plate and sheet). The most successfully used micro-alloying element was Nb. Nb is considered as the largest atoms that can be accommodated in the iron unit cell (substitution solid solution strengthening). Moreover, it raises the recrystallization temperature (Tr). Nb has the ability to form carbides, nitrides and carbon-nitride precipitates.

Mainly, micro-alloyed flat steels were developed to fulfill the requirements of the American Petroleum Institute (API) specifications 5L- Product Specification Levels (PSL1) and (PSL2) for manufacturing oil and natural gas pipelines. Parallel to the API specifications, a high precise computer control of the roll mills was developed and a newly born Compact Slab Processing (CSP)-hot strip direct rolling technology was created.

The 3<sup>rd</sup> micro-alloyed steel generation was initially developed after 2005 and continued up to day. It deals with micro-alloying with special functional elements like Boron (B). Boron was favored as a micro-alloying element for two reasons. Boron carbide precipitates (B<sub>4</sub>C) are the hardest after

diamond, which would be reflected on raising the mechanical properties of the steel. Moreover, Boron was favorably used because it delays the temper embrittlement phenomena.

On the year 1985, Central Metallurgical R&D Institute (CMRDI) succeeded to sign two contracts with the Egyptian Academy for scientific research and technology. One of the contracts was related to explore Fe-Ti and Fe-V production at a semi-industrial scale from the Egyptian ores. The second one was related to implementation of HSLA V-microalloyed rebar steel grades instead of conventional grades at Delta steel mills.

It was then necessary to look after the flat steel products especially after the introduction of the CSP-direct hot strip rolling unit at Alexandria National Iron and Steel Company (ANSDK) on year 2000. The CSP technology is highly controlled, which would help to implementation of thermo-mechanical processing for processing of wide variety of steel grades.

On years 2002, the metal forming department in CMRDI signed a contract with the Niobium products Company - Germany for use of Nb in micro-alloying of flat steels. After sometime on 2003, the Academy of Scientific Research and Technology signed another contract with the same research group for implementation of Controlled Rolling of Hot Strip Nb-Steel at the Compact Slab Process (CSP) Machine. Controlled hot rolling schedules were used and followed by early and late cooling at the run out table (ROT). Both contracts were fruitfully succeeded to introduce the API X52 grade at ANSDK company, followed by X60, and X70 steel grades at Ezz Flat Steel (EFS) company. The essential mechanical properties of the processed API steel sheets were matched with the API 5L-PSL2 specifications. Furthermore, a detailed microscopic investigation was carried out by the Transmission Electron Microscope (TEM) to trace the role of Nb-microalloying in the steel matrix.

On year 2014, the National Authority for Military Industrialization seeks for a local processing of the armor steel plates. The authority requested from CMRDI to collaborate with Military Factory 100 to implement field trials for processing armor steel. A contract was signed on year 2015 and trials were started with the designed 3<sup>rd</sup> generation B-microalloyed steel alloy. Many other alloying elements were used beside Boron to develop extra high strength 6.0 mm thickness plates. Rolling passes were designed at both roughing and finish rolling stages. Finish hot rolled plates were subjected to a subsequent heat treatment by water quenching from 900 °C and followed by tempering at 250 °C for 20 min. The steel possesses ultimate tensile strength 1707 MPa, Yield stress 1287 MPa and elongation 11.35 %, in combination with impact resistance 37.24 J at room temperature while it has 30.06 J at -40 °C. Representation 50X50 cm<sup>2</sup> steel plates were used as targets in ballistic tests. The plates passed successfully after 3 bullets in front and 3 bullets rear shooting.

<b>Title</b>
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<b>Author</b>
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Mohamed Elghamry
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<b>Abstract</b>
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**Title****Author**

Mohamed Labib Salem

**Abstract**

Center of Excellence in Research as a national strategy in Egypt: Center of Excellence of Cancer Research at Tanta University as a success story

Will Submit

## Title

# Learning Environment and Integrated Medical Curriculum

## Author

Mostafa Abdel Nasser  
Professor of Microbiology, Immunology & Infection Control  
Faculty of Medicine, Al-Azhar University, Cairo, Egypt.

## Abstract

Learning environment refers to the diverse physical locations, contexts, and cultures in which students learn. Since students may learn in a wide variety of settings, such as outside-of-school locations and outdoor environments, the term "learning environment" is often used as a more accurate or preferred alternative to classroom, a room with rows of desks and a chalkboard, for example. The objective of this lecture is to spot light on the importance of environmental factors and their effect on learning and education. It also aims to stress on how Al-Azhar Faculty of Medicine was aware on the role of learning environment when designing its integrated medical curriculum. In 2017, Al-Azhar Faculty of Medicine has adopted learning undergraduate medical curriculum through small group discussions, problem solving, team based learning, etc., Before launching integrated medical curriculum this year (2018/2019) the process of environmental was studied to explore environmental issues which will engage students to take an action to improve the environment. In this regard, educators may argue that learning environments have both a direct and indirect influence on student learning, including their engagement in what is being taught, their motivation to learn, and their sense of well-being, belonging, and personal safety. For example, learning environments filled with sunlight and stimulating educational materials would likely be considered more conducive to learning than drab spaces without windows or decoration. We are now approaching the end of the first semester of the application of this curriculum and an evaluation and modification are awaiting.

In Conclusions, how learners interact with students and how students interact with one another may also be considered aspects of a learning environment, and phrases such as "positive learning environment" or "negative learning environment" are now used in the trial of Al-Azhar Faculty of Medicine.

## Title

# Navigation with Dollars-Level Inertial Sensors – The Potential for Self-Driving Cars

## Author

Dr. Naser El-Sheimy, PEng, CRC  
Professor and Canada Research Chair  
The University of Calgary

## Abstract

There are three ‘pillars’ that define the performance or usefulness of a navigation technologies – cost, accuracy, and continuity. Navigation is a field that has been fascinating humankind for thousands of years and these pillars have been evolving with new technological advancements. The current market in positioning and navigation is clearly dominated by GNSS. Besides being globally available, it meets two important pillars: accuracy and cost by providing the whole range of navigation accuracies at very low cost. It is also highly portable, has low power consumption, and is well suited for integration with other sensors, communication links, and databases. At this point in the development of navigation technology, the need for alternative positioning systems only arises because GNSS does not meet the continuity pillar as it does not work in all environments. Furthermore, there has been a constant push to develop navigation systems that are accurate, continuous and easy to afford. Needless to say, that cost and space constraints are currently driving manufacturers of cars, portable devices (e.g. smartphones), and autonomous systems (e.g. self-driving. Drones, cars and agriculture machine systems) systems to investigate and develop next generation of low cost and small size navigation systems to meet the fast-growing location services market demands. Advances in inertial navigation and more specifically Micro-Electro-Mechanical Systems (MEMS) technology have shown promising light towards the development of such systems. Advances in MEMS technology combined with the miniaturization of electronics, have made it possible to produce chip-based inertial sensor for use in measuring angular velocity and acceleration. These chips are small, lightweight, consumes very little power, and extremely reliable. It has therefore found a wide spectrum of applications in the automotive and other industrial applications. MEMS technology, therefore, can be used to develop next generation navigation systems that are few dollars-level, small, and consume low power (microwatt). However, due to the lightweight and fabrication process, MEMS sensors have large bias instability and noise, which consequently affect the obtained accuracy from MEMS-based IMUs. This presentation will provide a state of the art and future trends of few dollars-level MEMS based navigation technology: possibilities, limitations and various design approaches. Some of the current developed and possible future system’s accuracy performance will be demonstrated through land and air tests.

## Title

**SAFI Contribution to EGYPT Can Program Education - Infrastructures - Investments**

## Author

Dr. Rachik Elmaraghy, Ph.D., Eng., FCSCE  
CEO SAFI Inc. CANADA

## Abstract

This Short presentation is aimed as a contribution to the Egyptian University Education reform program and to the Infrastructure projects at large that need advanced technological tools to support Egypt's ambitious University Education reform program and to the infrastructure projects and saving foreign currency.

Egypt plans to reshape the Egyptian economy through improving Education while making use of the Egyptian expertise and Know-how internally and abroad as well. SAFI Quality Software Inc. is an **Advanced Engineering Technological company** that fits into this category. SAFI is a Canadian company created in 1986, dedicated to creating the world's most advanced structural analysis and design software in most fields of structural engineering with the help of Canadian engineering resources, talents and investments. SAFI Inc. was created and directed by an Egyptian Engineer since its conception in 1986.

SAFI customers include users in Canada, USA, China and other countries. Some of these large international companies using our technology export to countries such as Egypt their products and expertise. SAFI technologies are adapted to several fields of structural engineering. The GSE, BSE, TSE and PSE products are dedicated to general structures and buildings, bridges of all types, electrical utilities, transmission towers and telecommunication as well as for Oil & Gas Onshore/Offshore and Water drilling rigs.

Collaboration with Egyptian Scholars in various Structural Engineering and Manufacturing fields is recommended and welcomed.

## Title

# Translational Science from Bench to Patients: Our Own Experience with Cyclocreatine as a Novel FDA-Designated Drug

## Author

Professor Dr. Salwa A. Elgebaly

## Abstract

Cyclocreatine is a Potent “*Bioenergetic*” Drug which Prevents Ischemic Injury and Enhances Strong Cardiac Recovery During Early Reperfusion. Heart disease is the leading cause of death worldwide and it is predicted to persist due to the progressive aging of population. Ischemia of the heart such as in the case of a heart attack is a result of diminished blood flow to heart tissue. Pharmacologic therapies to reduce reperfusion injury after clot removal, have not been so successful leading to an increase in the incidence of heart failure (approximately 50% of heart attack patients).

Current challenges for end-stage heart failure patients scheduled for transplantation surgery include: (a) 7 out of 10 donor hearts are unutilized because of the 4-hour limit of transportation time from donor site to recipient; (b) lack of protection from ischemic injury during donor heart harvesting; (c) lack of adequate preservation during transportation beyond 4 hours; and (d) the high cost of \$1 Million for each heart transplantation surgery.

Based on our recent pre-clinical efficacy studies, the U.S. Food and Drug Administration (FDA) has awarded the Orphan Drug Designation (ODD) to Nour Heart, Inc. and Prof. Salwa A. Elgebaly for Cyclocreatine Phosphate with the unique designation for: “*Prevention of Ischemic Injury to Enhance Cardiac Graft Recovery and Survival in Heart Transplantation*”.

Some of the clinical impacts of using the cardioprotective Cyclocreatine Phosphate are: (a) expand the transportation time beyond 6 hours and, thus, increase utilization of donor hearts; (b) faster and better heart recovery after transplantation surgery; (c) improve survival time of heart grafts and patients; (d) reduce length of hospital stay and save money; and (e) improve patients’ outcomes and quality of life. Currently, Prof. Elgebaly is preparing the FDA-required Investigational New Drug (IND) application to initiate Phase I Clinical Trials in the U.S.

## Title

**Innovative Medicines in Egypt**

## Author

Professor Dr. Salwa A. Elgebaly Nour Heart, Inc. - USA

## Abstract

### *Strength:*

1. Highly Skilled Egyptian Scientists
2. Strong FDA-Regulated Phase II and Phase III Clinical Trials

### *Opportunities:*

1. Develop Newly Discovered Molecules to Pharmaceutical Products.
2. Manufacture Active Pharmaceutical Ingredients (APIs).
3. Manufacture *Innovative* Medicines for Local Market and Export Worldwide.

### *Main Challenges:*

1. Preclinical *Animal Facilities* Certified by AAALAC International.
2. *Know-How* of:
  - a) *API Manufacturing* Meeting Global Standards (U.S. and European).
  - b) *API Scaling Up* from Grams to Kilograms to Tons.
  - c) *Facilities* Built to Meet Global Standards.
  - d) Egyptian *Employees* Applying Global Standards.

### *Strategies for Success:*

1. Implement AAALAC International in Egypt.
2. Establish a Globally Compliant Pharmaceutical City to include:  
API Facilities and Finished Product Facilities.
3. Establish 3 Academic API Training Centers.

**Title****The Future of Higher Education: Challenges and Opportunities in Egypt****Author**

Samah Metwally Mahmoud Abd EL-Aziz National Research Centre

**Abstract**

Higher education (also called post-secondary education, third-level or tertiary education) is an optional final stage of formal learning that occurs after completion of secondary education. Higher Education is very important stage for building nation youth and by the following building of the country, so that there is strong need to study the problems of this education and how to solve them. There are two types of this education including governmental and private education. Governmental education need active students from different classes (rich or poor) but the private education takes students who have money without having scientific level. So that this point is too important to be studied, if each type of this education aims to building of nation youth thus there is necessity to make equilibrium between them meaning that choice of student must be united in the good scientific level and if there is a difference may be in the facilities of the education to make equality of the students in their scientific levels to build really good builders to their country. Also there is a necessity to agriculture of the good manners and ethics in these students. Also relationship between professors and students should be as fathers or mothers and their sons or daughters to agriculture of love and ethics in these students. If all of these items are achieved we will make great students loving and building their country.

**Title****How to promote your research work?****Author**

Tamer M. Hamdy Restorative and Dental Materials Department, National Research Centre (NRC),  
El Bohouth St., 12622

**Abstract**

Metrics are significant in the assessment of scholarly research as universities and institutions. Researchers are appraised based on their publications and more specifically on the numbers of citations their publications receive. Increasing your citation count improve your H-index. You should choose your target journal before publication carefully to gain more reader and possible citation. In addition, you could show your recent work in conferences. Also, after publication of your research work, there are a subsequent pivotal step involves spreading of your research to increase your visibility, helping you to achieve the recognition you deserve. This includes sharing and promotion of your research work using many tools to ensure accurate media coverage such as social media, scientific sites, scientific engines and communities, online discussions and keeps an updated online profile.

**Title**

**Author**

Tarek Hatem

**Abstract**

**Title****Artificial Immune System Based Approach to Cyber Attack Detection****Author**

Professor Tarek Saadawi  
City University of New York

**Abstract**

Cyber Attacks have been increasing at an alarming rate. For example, the attack on DYN company on October, 2016 have resulted in the cutoff of Internet services in the North East of the USA. The Dyn company is an organization that controls many of the Domain Name Servers that service American domains. This widely successful attack utilized the now infamous Mirai – a nasty piece of malware that powers an extensive botnet largely populated by Internet of Things (IoT) devices. Advancements in Internet of Things (IoT), nanotech computing, wireless, advanced robotics, autonomous systems, intelligent agents, cloud computing and other technologies, as well as reliance on 3rd party commercial-off-the-shelf software, will also increase the cyber-attack surface in systems and networks.

Given the ability of the human immune system to detect all forms of infections and how the human body can be related to the complex network of interconnected systems that exist today, our proposal takes a biological approach to solving the network intrusion detection problem. Our proposed bio-inspired system for network intrusion detection makes use of the models that exist in immunology which has been abstracted to an area under artificial intelligence known as artificial immune system (AIS). The proposed system will be a combination of the immunology-developed theory of self-nonsel (SNS), and danger theory (DT). The proposed system stems from our successful application of SNS and DT respectively to the detection of cyber attacks that originate from external networks. Our proposed system will be detecting cyber-attacks that originate from both inside and outside a communication network.

## Title

# Advances in Proactive Road Safety Planning

## Author

Tarek Sayed, Ph.D., P.Eng., FEIC, FCAE, FCSCE  
Department of Civil Engineering  
University of British Columbia

## Abstract

There has been a remarkable decrease in road traffic fatalities and injuries over the last decades, especially in developed countries. Despite the considerable progress achieved, there is still serious concern regarding road safety; each year more than 1.25 million people die worldwide in road crashes and a further 50 million people suffer injury. Road traffic injuries are the number one cause of death among those aged 15–29. Due to the growing recognition of the enormous toll exacted by road traffic crashes, the United Nations announced this decade (2011-2020) as a Decade of Action for Road Safety. Therefore, the importance of research into reducing the social and economic costs of crashes cannot be overstated.

Most current research on road safety focuses on statistical techniques to model crashes and evaluate safety countermeasures. Less attention has been devoted to improving our understanding of crash causes and road user behavior. This is unfortunate, given the lack of understanding of the complex interaction of crash factors, how safety measures work, and how they affect road user behavior. Crashes represent instances in which the road system has failed, yet our understanding of the failure mechanism is relatively poor, thus reducing the accuracy of the diagnosis and remedy processes. More important, there is a fundamental ethical and practical dilemma facing road safety analysts worldwide: in the current reactive safety management practices, to identify and diagnose safety problems, a relatively large number of crashes need to be observed which we will subsequently strive to prevent.

There is a growing appreciation in the road safety community for the need to implement a more proactive approach to road safety. The focus of this paper is on proactive engineering initiatives that can be employed to improve road safety. An overview of emerging trends in proactive road safety management will be provided. Case studies from proactive safety management projects undertaken at the University of British Columbia in several countries will be presented.

## Title

# Smart Products and Manufacturing Systems

## Author

Professor Waguih ElMaraghy (1) and Professor Hoda ElMaraghy (ElGammal)(2)  
(1) Ph.D., P.Eng., FCIRP, FASME, FCSME, FCAE, FEC, Professor and Director  
(2) PhD., PEng, OONT, FRSC, FRSAES, FCIRP, FCSME, FSME, FCAE, Distinguished  
University Professor, Director  
Intelligent Manufacturing Systems Centre  
Department of Mechanical, Materials and Automotive Engineering (MAME)  
University of Windsor, Canada

## Abstract

Smart Products are cyber-physical products/systems (CPS) which additionally use and integrate internet- based services in order to perform required functionality. In order to better understand the engineering development methodologies for Smart Products it is helpful to follow the evolution of design theory and methodologies (DTM) over the last thirty years. It is also important to discuss what the core technologies involved are. This presentation will discuss smart products and corresponding smart manufacturing systems, as well and applicable paradigms and methodologies. Manufacturing systems have adapted to changes in production volumes, products variety and increasing consumers' demands for more customization and personalization. Disruptive

Technologies which had major effects on manufacturing systems, including smart products, will be discussed. Enablers of smart, more productive and competitive manufacturing systems will be discussed. The increased use of insights arising from data collection and analysis will allow more rapid, responsive/adaptive and connected manufacturing, where products and production processes can co-evolve and adapt to changes in the market, on the shop floor and in the enterprise. The added complexity to manufacturing systems by smarter products and advanced technologies place urgent demands for effective manufacturing systems design and operation. Manufacturing

Systems Learning will be discussed and the experiential Learning Factory in the IMS Center at University of Windsor will be used for illustration. This paper will discuss the objectives, features, characteristics and pre-requisites of the fourth industrial revolution and will make some general observations and recommendations for Egypt's industrial modernization strategy. In summary, Egypt should join the 4th industrial revolution soon to reap its benefits.

<b>Title</b>
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<b>Significance of Strategic Planning and University Ranking in Egypt's Higher Education</b>
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<b>Author</b>
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Dr. Mohamed Attalla
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<b>Abstract</b>
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## Title

**Radar for Smart Homes, Medical Diagnosis, and Assisted Living**

## Author

Moeness Amin  
Center for Advanced Communications  
Villanova University  
Villanova Pa USA

## Abstract

Radar has emerged as a leading technology supporting large sectors of commerce, defense and security. Enabled by the advent of small, low-cost solid-state and software-defined radar technologies, new civilian radar applications to medical radar, automotive radar, human-computer interaction, and smart environments have been made possible. The safety, reliability, portability and affordability of radar devices have made them a prime candidate for use inside office buildings, homes, schools, and hospitals. Radar possesses unique advantages that complements other sensors, e.g., visual, infrared, acoustic, pressure, and wearable sensors. It is a non-contact device that is insensitive to external lighting conditions and darkness, and is even capable of penetrating opaque objects, such as tables or walls.

This presentation captures a new radar application that touches on our daily living. It is radar for indoor monitoring. We show that radar backscattering signals can reveal human motion independent of clothing, making it ideal for sensitive environments, such as hospitals, assisted living facilities, restrooms, and bedrooms, where people would not be comfortable placing video cameras. Radar-based remote health monitoring technologies have direct benefits to seniors whose worldwide population over age 65 is projected to increase to one billion in 2030. The development of in-home motion classifiers using radar is an integral part of the "aging-in-place" paradigm that offers a sense of security and safety for residences and their family members. Radar offers a non-obstructive passive motion sensor technology capable of notifying caregivers and first responders of critical events that pertain to the health and welfare of the observed individual. We demonstrate that sensing for smart environments and gesture recognition for device control using radar have the potential to transform the way we live and improve quality-of-life globally by changing the way we interact with our surroundings.

## Title

**Honey and its effects on blood components of mammals (a review)**

## Author

Moeness Amin  
Center for Advanced Communications  
Villanova University  
Villanova Pa USA

## Abstract

Radar has emerged as a leading technology supporting large sectors of commerce, defense and security. Enabled by the advent of small, low-cost solid-state and software-defined radar technologies, new civilian radar applications to medical radar, automotive radar, human-computer interaction, and smart environments have been made possible. The safety, reliability, portability and affordability of radar devices have made them a prime candidate for use inside office buildings, homes, schools, and hospitals. Radar possesses unique advantages that complements other sensors, e.g., visual, infrared, acoustic, pressure, and wearable sensors. It is a non-contact device that is insensitive to external lighting conditions and darkness, and is even capable of penetrating opaque objects, such as tables or walls.

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## Title

**Honey and its effects on blood components of mammals (a review)**

## Author

Soad M. Nasr and Hamdy Soufy

Department of Parasitology and Animal Diseases, National Research Centre, 33 Bohouth Street, Dokki, 12622, Giza, Egypt

## Abstract

Honey is modified nectar produced by honey bees from floral nectars and other plant secretions of different plants. This review aimed to spotlight on the therapeutic effects of honey with special effect on the hematological and biochemical parameters of mammals. Honey is a supersaturated sugar solution, organic acids mainly gluconic acid (byproduct of enzymatic digestion of glucose), minerals, vitamins and enzymes. Raw, unprocessed honey has the most medicinal and nutritional values. Honey contains over 180 substances such as phenolic acids, flavonoids, certain enzymes (glucose oxidase, catalase), ascorbic acid, carotenoid-like substances, organic acids, Maillard reaction products, amino acids, and proteins. These phytochemicals - including polyphenols which have a powerful antioxidant, anti-inflammatory, antimicrobial, antiparasitic, antitumor, antidiarrhoea, antimutagenic, anticarcinogenic and immunomodulatory activities. Honey has been considered as a remedy in wound healing since ancient times. Hyper-osmolarity of honey and stimulation of body enzymes induce autolysis of necrotic tissue in a wound, achieving removal of debris. It stimulates hemopoiesis and activates the immune system by increasing the phagocytic activity. Honey has an inhibitory effect on platelet aggregation and blood coagulation. Honey reduces fasting blood sugar. Honey decreases liver and muscle enzymes activities and creatinine, urea, triglycerides, total cholesterol, low density lipoprotein levels. with increases the antioxidant parameters in serum which reduces the toxic effects of Ochratoxin A- induced hepatotoxicity and nephrotoxicity. Honey has a protective effect against oxidative stress. In conclusions, honey is of great benefit in the treatment against all diseases and other environmental pollution due to highly potent antioxidants and immunomodulatory effects.

**Key words:** Honey, hematology, biochemistry, immunity, cytokines, diseases.

## Title

**The development of burial architecture since the stone ages until the ancient Kingdom Evidence of the natural evolution of the idea of construction of the pyramid shape in Giza**

## Author

Dr. Mahmoud Omar Mohamed Selim  
The previous Dean of the Higher Institute of Ancient Near East Civilizations.  
Professor of Archeology and Ancient Egyptian Civilization.  
Department of Ancient Egyptian Civilization Institute, Zagazig University.

## Abstract

They did not stop the scientific claims of a number of specialists who planned to achieve their political goals. They exploited the genius of building the Great Pyramid and the rest of the pyramids of Giza to prove that this architectural miracle was not inspired by the ancient Egyptians but came from their own people, although thousands of scientific works and many evidence Presented by scientists interested in pyramids prove that this claim is incorrect, which proves that it is one of the achievements of ancient Egyptians.

This is not true because these pyramids were the end of a long series of development that extended from the stone ages until the Great Pyramid was built in Giza. The rings of this development were the product of the Egyptian environment and the development of burial in ancient Egypt. Its environment and the development of its burial doctrine inspired the idea of building pyramids and means of implementation.

The first steps in the burial structure since the ancient stone age, where a long period of time from about 20 thousand years BC to 6000 thousand years BC, and his steps were throughout the modern stone age from 6000 to 3200 BC. For this reason, there have been significant changes in the burial habits of the ancient Egyptian, and after his burial was buried in the midst of this brutal life in a hole away from the smell of his death or left in the open as long as it is permanent, the situation changed with stability in various residential centers where he took care of The most important examples of this were found in the delta, including in Marmda and Helwan, and in its eastern part, which is endowed with a "Helwan or a civilization". Another example of the pre-Kingdomes age in Upper Egypt , The civilization of "Badari", and in the "Nkada I". In the Naqada II civilization, which was more widespread than others, it laid down the rules of agricultural civilization and took great

strides in its industries, and developed their houses as they were rectangular and built of bricks. Their tombs were more sophisticated.

Accordingly, the next phase of the harmonious development with the Egyptian environment of the burial architecture using the building was higher in place, to distinguish the tombs, where a half-pyramid or Mastaba, which was built by the Egyptian kings in the first Kingdom - about 500 years ago.

The next development in this form was half-pyramid when Egypt ruled King Zoser the first kings of the third Kingdom (during the period 2780 BC). Then came the next development of the pyramid shape in the reign of King Houny (Ho) the last kings of the third Kingdom (About 2670 BC), about 100 years after the King Zoser in the pyramid, which was built the pyramid of Midum, which is on the way to Fayoum, a pyramid of eight degrees. Then King Senefro was built in the area of Dahshur south of Saqqara pyramid, which is an intermediate stage in the evolution towards the pyramid shape, which is a semi-complete pyramid, known as the pyramid curve. Also built to the north of the pyramid curve is what is known today as the Red Pyramid, the oldest model of the whole pyramid, which represents the last stage in the evolution towards the full pyramid shape.

It is thus clear that the oldest form of pyramid was older than the pyramid of Khufu and built of stone also, which reveals the lack of familiarity with the facts about the pyramids and the links related to the stages of evolution of the pyramid form provided by the Egyptian environment in the incubation of the natural development of burying its dead and then construction of the tombs of kings.