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- Beyond Parametrics: McLuhan's Communication Theory as an Anti-environment for Understanding the Effects of Technological Environments upon Cultural Change. By Asst. Prof. Isaac Lerner.
- In Vitro Prospective Effects of Various Traditional Herbal Coffees Consumed in Anatolia Linked to Neurodegeneration. By Prof. İlkay Erdoğan Orhan
- Microbial Geotechnics. By Hamed Khodadadi Tirkolaei

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Dear colleagues,

Welcome to the first issue of the biannual Research Newsletter, covering research activities and events for the period from January 2012 to December 2012. With the best intentions, we, the editorial staff, have tried to provide interesting and original research articles that our colleagues have been working on.

The research newsletter depends on your contributions to help further new research ideas and understanding of contemporary issues and topics within the scientific domain. Whether from the social sciences or pure sciences, the possibilities of new original research ideas enliven and challenge our staff to continue to excel and work within their fields of expertise as well as to diverge into multi-disciplinary areas of research.

We appreciate the articles and the abstracts which have been contributed for the present issue and in the past. We hope that many more staff members will participate in order to enhance research and the potential for innovative work from this community of scholars.

Our research spotlight features three articles; one from the Department of Architecture written by Assistant Professor, Isaac Lerner. His article is concerned with the effects of digital technologies as a creative environment (i.e., anti-environment) in education and practice. The second article, contributed to us from the Department of Pharmacy, was written by Professor Dr. İlkey Erdoğan Orhan. This research deals with the effects that various traditional herbal coffees have on neurodegeneration, in particular, Parkinson's disease and Alzheimer's disease. The third article was written by Ph.D Candidate, Hamed Kodadadi Tirkolaei from the Department of Civil Engineering. His research on microbial geotechnics, which is part of an innovative multi-disciplinary branch of Geotechnical Engineering, explores the possibilities of using micro-organisms as micro-engineers for the improvement of the properties of soils with consideration for the ecology.

Once again, we wish to express our appreciation and would like to thank all the contributors for providing us with their interesting and provocative material, without which the EMU Research Newsletter would never have materialized as an invaluable source of information. We look forward to working with our contributor's again in the upcoming issues.

Finally, my personal thanks go to the Editorial Team Member, Editorial Assistant, Olusegun Olugbade for all his help and support especially throughout these major changes and challenges.

Sincerely yours,

Senior Instructor, Ulrike Lerner

Editor-in-Chief

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Research @ EMU

■ At a Glance - Research at EMU in 2012

Eastern Mediterranean University recognizes the fact that research is a fundamental element of any modern university. Here, at EMU we believe that research is not only a tool for improving the well-being of the society but it also inspires and informs teaching and services within the university. EMU has the mission to encourage and promote state-of-the-art research in the form of publications and other scholarly achievements and aims to increase research activity in terms of quantity, quality and scope.

The Research Advisory Board and the Research Support Office, under the Vice Rector's office responsible for Academic Affairs, aims to promote research by granting publication awards for scholarly articles published in indexed journals (SCI, SCI-E, SSCI, AHCI) as well as support for attending scientific conferences. The Board also provides support for research activities with the aim of providing the infrastructure required for research.

During the year 2012, EMU has funded 49 academic staff members for attending highly reputable academic conferences around the world. Furthermore, 16 staff members have been granted a paid leave for carrying out research at prestigious universities and institutions under the Research Leave Support Program. In addition to supporting research through conference attendees and research leaves, EMU has granted publication awards to 131 academic staff members for the publication of their scholarly articles in top ranked indexed journals.

Three conferences have been hosted at EMU during the year 2012. The 3rd International Conference in Communication and Media Studies (Re)Making and Undoing of Peace/Conflict (11-13 April 2012), the 6th International Seminal on Vernacular Settlement Contemporary vernaculars: Places, Processes and Manifestation (ISVS-6) (19-21 April 2012), and the 8th International Congress On Cyprus Studies (25-27 April 2012) have all contributed to the research atmosphere on campus in a very positive manner by bringing in respectable speakers and attendees from around the globe into our close vicinity.

■ Conference Support Recipients

In 2012, EMU approved financial support for conferences. Below is the list of some of the recipients, the title of the papers and the abstracts.

- Başarır, H. 'The Kertikli Hammam: A Historic Building in Danger.' *Historic Famagusta: A Millennium in Words and Images*, Budapest, Hungary, October 2012.

The historic city of Famagusta is a significant place where the architectural remains of many different periods in Cyprus can still be found in this densely built-up environment. Among the medieval, early modern and modern periods of the history of the city, there are not many remains from the Ottoman period on the island, although this period lasted approximately three-hundred years (1571-1878). This paper presents an analysis of the largest surviving historic public bath (hammam) which is located in the historic city of Famagusta, the 'Kertikli Hammam'. The building in its present state was a product of the Ottoman occupation of the island; however, it was thought to have been built on the remains of an earlier period. The physical fabric of the 'Kertikli Hammam' is currently in an advanced state of decay with the collapse of the main floors of the interior. This paper aims to explore the reasons for the present state of decay of this forgotten structure. A number of guidelines will be recommended for the future sustainable conservation and continuity of the 'Kertikli Hammam' within the physical and social context of Famagusta.

- Omar Ramadan, "Exponential Evolution FDTD Operator for General Dispersive Electromagnetic Applications", in *Proceeding of Mosharaka International Conference on Communications, Propagation and Electronics (MIC-CPE2012)*, pp. 17-21, Istanbul, Turkey, 3-5 Feb. 2012.

Simple and effective finite difference time domain (FDTD) formulations are presented for modeling multi-pole linear dispersive electromagnetic applications. In the proposed formulations, the Maxwell's curl equations and the dispersive domain constitutive relations are cast into a set of first order differential matrix systems and the field update equations can be extracted directly from the matrix exponential approximation. The formulations have the advantage of simplicity as it allows modeling linear multi-pole electrically and/or magnetically dispersive materials in the same manner and also can be easily incorporated with the perfectly matched layer (PML) absorbing boundary conditions (ABCs) to model open region problems. Numerical examples are included to demonstrate the validity of the proposed formulations.

- Oktay D. "Public Urban Spaces as Essentials of Human Sustainable Urbanism", in (digital) *Proceedings of the 26th AESOP Annual Congress: Planning to achieve / Planning to avoid*, Ankara, July 2012.

The acceleration of globalization has initiated a process of urban transformation, posing some serious threats and challenges to the public spaces of cities, among others. As cities have grown larger

and spread wider, urban functions have disintegrated and public spaces, which are important to a democratic and inclusive society, have lost much of their significance in urban life. They became “empty spaces”, a space of abstract freedom but no enduring human connection (Sennett, 1994, 375). Economic liberalization and social polarization and fragmentation have turned public spaces into subjects of contestation, reflected in neglect and decline or privatization/institutionalization, commercialization and exclusion. The Public realm, in this context, is shrinking and losing its meaning in people’s life (Banerjee, 2001).

For a long time, owing to the affects of the Modern Movement in architecture, it has been common practice in the development of new districts to prioritise the buildings themselves, then, if possible the public life. The results are deserted city centres and deserted neighbourhoods and urban spaces, where one gets the impression that the city is for cars, not for people. On the other hand, although public spaces form a crucial feature of sustainable and liveable cities, contemporary urban environments frequently lack enough space kept aside for them, and most of those “designed” spaces which are introduced as “public spaces” miss social, spatial and ecological qualities, and cannot be considered “places for people”.

This paper, explores the problems with contemporary public open spaces and the reasons behind them, highlights the role of liveable public urban spaces on social-cultural sustainability, and proposes a people-friendly perspective on planning and designing public open spaces within the context of “human sustainable urbanism” inspired by traditional urbanism (Oktay 2011). As sensitivity to tradition allows us to excavate the sophisticated repository of knowledge embedded in planning and design principles and processes linked to the ecological and socio-economic contexts of times past (Oktay, 2004), the study revisits the Ottoman (Turkish) city and presents the lessons that can contribute to meeting contemporary and future planning and design needs provided that their viability are checked for in each case and within a time-based perspective.

■ **Özreis I, Yilmazogullari Y, Camkiran S, Ozcelik S, Akman S, Arslan, S and Gulmez SE.. Gender ‘Differences in Skills of Multitasking’. 17. International Psychology Conference, İstanbul, Turkey, April 2012.**

Multitasking has been defined as the ability to perform more than one task at a time (McDowd & Craik, 1988). In everyday life, individuals multitask all the time. In spite of the general observation that women in comparison to men can better coordinate more than one activity at a time, to date there are no conclusive findings to support this observation. The aim of the current study therefore, was to investigate for gender differences in skills of multitasking. Eighty-three (46 male, 37 female) participants aged between 18 and 30 years (M=23) were recruited from Eastern Mediterranean University. To measure for skills of multitasking, participants were asked to perform both a memory and reaction time (RT) task concurrently under two divided attention conditions, that is, at encoding and retrieval. The MANOVA results showed no significant differences between males and females in skills of multitasking. Neither females nor males could out perform each

other on both the memory and RT task under the two divided attention conditions. These findings indicate that the ability to multitask is not influenced by any differences in the cognitive functioning of males and females but rather, the amount of practice which an individual has in coordinating the performance of multiple tasks.

■ **Karatepe OM. “The effects of hope and work engagement on frontline employees’ performance outcomes.” in Proceedings of the 35th EuroCHRIE Conference on Hospitality for a Better World, pp. 272-280, Lausanne, Switzerland, October 2012.**

This paper proposes and tests a research model that investigates whether work engagement (WE) mediates the effect of hope on job performance (JP), service recovery performance (SRP), and extra-role customer service (ERCS). These relationships were tested using data gathered from full-time frontline hotel employees and their managers in Romania. The results from structural equation modeling (SEM) suggest that the impact of hope on JP, SRP, and ERCS is fully mediated by WE. Based on the results reported in this study, several useful implications concerning acquisition and retention of frontline employees who can display high quality performance in the workplace are provided.

■ **Resmiye Alpar Atun. “Reconceptualising Urban Development in Exceptional Territories:Nicosia”. In proceedings of Sustainable City VII, International Conference on Urban Regeneration and Sustainability, 365-379.Southampton,UK,WIT Press, 2012.**

Urban territories have experienced certain transformations throughout different time-spans defined by certain benchmarks, depending on global (context free) and local (context dependent) parameters. Each territory has certain exceptional features according to its contextual characteristics; however, there are some territories which have certain ‘exceptionalities’ that become part of its very essence such as Nicosia, the divided capital of Cyprus. The disturbances, based on ethnicity, shaped the urban structures, affecting the overall process of urban development. In this paper, the development of city structure is evaluated upon the process of ‘urban transformation’ including the historical evolution of city structure, the experienced urban disturbances resulting from division, and a future urban integration as an essential step towards sustainable urban development. Also, the exceptionality, altering each step of the urban transformation of the city, will be considered as an attribution of the different dynamics related with ethnic, socio-political and environmental aspects of development. Urban transformation is reconceptualised into three parts with a retrospective approach. The first part of the article is focused on exploring the formation of the city structure that has evolved throughout history based upon utility- based developments. The second part focuses on assessing the de-formation of the city structure based upon the ethnic conflict between Turkish and Greek Cypriots, which has been dominated by a ‘power struggle’. The final part analyses the re-formation of the city structure, attempted by the EU process

whereby sustainable urban development is the goal. The substantial resources that have been allocated for the restructuring of Nicosia are questioned, where urban regeneration is accepted as a tool in restructuring the city with exceptionality.

■ **Bektas E. “Determinants of Interest Margin in north Cyprus Bank Market.” EuroConference 2012, Portoroz, Slovenia, June 2012.**

This study uses the one step procedure to investigate the determinants of loan and deposit pricing policies of banks operating in a small and closed bank market which possesses some unique attributes. For this purpose, in addition to bank specific variables, different from the previous literature, some macroeconomic variables are also used in this study. Findings show that some of the bank specific variables such as credit risk, liquidity risk, market power and cost efficiency are more significant than the other variables. Among the macroeconomic variables, inflation and treasury securities rates take on significant values within the net interest margin model. Results suggest that macroeconomic factors solely affect net interest margins, not the spread, in the north Cyprus bank market.

■ **Mohammad Shukri Ahmad, Aykut Hocanın, Osman Kükürer. “A Fast-Implemented Recursive Inverse Adaptive Filtering Algorithm.” IEEE 20th Signal Processing and Communications Applications Conference (SIU-2012), Oludeniz, Turkey, April 2012.**

The recently proposed Recursive Inverse (RI) adaptive algorithm [1] has shown improved performance in channel equalization and system identification settings. Although its computational complexity is lower than those of the RLS and Robust RLS algorithms, its computational complexity can be reduced further. A fast implementation method is applied in this paper to decrease its computational complexity. The performance of the fast implemented RI algorithm is compared to those of the Variable Step-Size LMS (VSSLMS), Discrete Cosine Transform LMS (DCTLMS) and Recursive- Least-Squares (RLS) algorithms in Additive White Gaussian Noise (AWGN), Additive Correlated Gaussian Noise (ACGN), Additive White Impulsive Noise (AWIN) and Additive Correlated Impulsive Noise (ACIN) environments in a noise cancellation setting. Simulation results show that the Fast RI algorithm performs better than the VSSLMS and DCTLMS algorithms. Its performance is the same as in the RLS algorithm with a considerable reduction in complexity.

■ **Research leaves granted by EMU**

The following is the list of those recipients who received a research grant from EMU, and their activities during this period of leave.

Name and Surname: Rashad Aliyev

Title and Position: Assoc. Prof. Dr, Department of Mathematics
Duration of leave: (19.06.2012 – 26.07.2012) (38 days)
Hosted university and country: Azerbaijan University, Azerbaijan

There exist four generalizations of decision-relevant information in the theory of decisions. In the first generalization, crisp numbers are used. The second generalization involves the use of intervals. The existing decision theories are mainly based on these generalizations which are: Expected Utility and Prospect Theory which utilize numeric information and the multiple priors-based theories like Maximin Expected Utility which utilizes interval-valued information. The third generalization is based on fuzzy sets. There exist a spectrum of works in this realm devoted to linguistic preferences, fuzzy utility function, fuzzy multi-criteria decision making and others. Unfortunately, all the decision approaches based on these three generalizations don't deal with real reliability.

Reliability is one of the most important qualitative attributes of decision-relevant information. However, in most cases, the existing decision theories' reliability of decision-relevant information is missing. In this study, we consider decision making under Z-information as information represented by Z-numbers.

Z-numbers are an adequate formalization of real-world information which almost always should be considered in light of its reliability. Moreover, Z-numbers represent the fact that real information and real reliability are commonly described in a natural language due to imperfect knowledge. Zadeh suggested the concept of a Z-number as the most general representation for real information and emphasized the necessity of its use in decision making and other important areas of human activity. A Z-number is defined as an ordered pair of fuzzy numbers (A,B). A is considered as a fuzzy subset of the domain of the variable of interest U, and B is considered as a fuzzy subset of the unit interval [1]. The interpretation is that A is an imprecise evaluation of a value of a variable of interest and B serves as an imprecise degree of reliability of A. More precisely, it is considered as a possible restriction on the probability measure of A. Z-information, that is, information represented by Z-numbers supports taking into account reliability of information and, moreover, it is an adequate measure of imperfect information of the real world which is commonly described in a natural language [5]. In [1] some operations for computation over Z-numbers are suggested which are based on the Zadeh's extension principle. In [2] it is shown how to use Z-numbers for the purpose of reasoning. An alternative formulation Z-information in terms of a Dempster-Shafer belief structure is also suggested. In [3] they suggest an approach to use Z-numbers for making decisions and answering questions. In [4] authors suggest solving multi-criteria decision making problems with Z-numbers. In [3] and [4] the Z-numbers are converted into classical fuzzy numbers over which computations are made. However, this leads to loss and distortion of information.

We developed an approach to decision making which generalizes the existing Expected Utility approach in the case of Z-information.

This approach, as opposed to the other work on decision making under Z-information, is based on direct computation over Z-numbers without converting them to fuzzy numbers. Direct computation over Z-numbers rules out the loss of information related to a conversion.

In the present study we suggested an operational approach to solving the decision problems with Z-information by using Expected Utility. This approach is based on computation over 'original' Z-numbers (without conversion to fuzzy numbers) according to operations suggested by L.A. Zadeh. We provided an example of the application of this suggested approach to solving a business decision making problem.

As a result of the research at the Azerbaijan University, this paper (Akif V.Alizadeh, Rashad R. Aliev, Rafiq R. Aliyev: Operational approach to Z-information-based decision making) has been published in the Proceedings of the Tenth International Conference on the Application of Fuzzy Systems and Soft Computing (ICAFS-2012), Lisbon, Portugal, August 29-30, 2012.

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4. Bingyi Kang, Daijun Wei, Ya Li, Yong Deng, "Decision Making Using Z-numbers under Uncertain Environment," Journal of Information & Computational Science,8(7):2807-2814, 2012.
5. R.Aliev, W.Pedrycz, B.Fazlollahi, O.H. Huseynov, A.V.Alizadeh, "Fuzzy logic-based generalized decision theory with imperfect information", Information Sciences, 189:18-42, 2012.

Name Surname: Özgür EREN

Title & position: Prof. Dr. & Lecturer (Department of Civil Engineering)

Duration of leave: 3 months (June-July-August 2012)

Host Organization and country: Building Research Establishment (BRE Trust), United Kingdom

The organization (Building Research Establishment, BRE Trust) in which I joined to conduct my research was well organized. It

was established 90 years ago by the King of England. I joined the BRE Global Building Technology Group, one from among many groups. The staff members of this group were well qualified and experienced scientists and engineers.

The laboratories of BRE were well equipped and capable of making almost all kinds of tests on buildings and materials. The health & safety issues were taken very seriously within BRE. BRE is a leading organization in the UK and even within the EU for environmental friendly/energy saving buildings and materials.

The programme I joined was based on a research study related to the "repair & maintenance of corroded structures". Dr. Stuart Matthews, my contact person, and I were aiming to produce initially, a technical report on the effects that reinforcement corrosion had upon the structural capacity of reinforced concrete elements and structures. After a detailed search on the subject followed by discussions with some experts within BRE, almost all published sources (articles, reports) were obtained from different organisations (BRE, EMU Library, British Library, InstStrucEng, ICE, etc) and classified according to the keywords from this field of study or their usefulness. The resultant report on "the effects of reinforcement corrosion upon the structural capacity, August 2012, BRE" produced at the end of these 3 months was a detailed summary of what had been done on the subject to date. Following this report, it would be imperative to use the existing technical knowledge obtained within the report to produce a code of practice or a standard document to estimate the structural capacity of corroded/damaged reinforced concrete buildings. This will be done with the continued collaboration between EMU and BRE and the subsequent report is expected to be completed within a year.

Conclusion

I managed to achieve most of my expectations during the three months of my work at BRE.

Throughout my stay at BRE, I had an opportunity to visit some laboratories (acoustics lab, structures lab, concrete lab, fire chamber, fire testing lab). These labs were technically well equipped to serve the industry and further research work. I also visited "BRE Innovation Park" which was very interesting and informative; a place where one could actually see the works in progress in terms of ecological, environmental friendly, energy saving and sustainable building designs. There were about ten model home design variations built from different concepts and on display to all building contractors, engineers, scientists who come from all over the World every year to gather the latest information on technological innovation.

I also visited a large building in West London as part of the project that I was working on. This building was under renovation and repair work. BRE and their technical team were the coordinators and advisers for this project.

Moreover, I met other actively engaged researchers who

shared my ideas about collaborating between BRE and EMU in the future. Hopefully, this will be done in a way that it will be beneficial for EMU and our country.

This collaboration most probably will take the form of sharing graduate students whose theses/dissertation subjects will be agreed upon by both organizations as well as the preparation of a code of practice within a year on the structural capacity of corroded/damaged reinforced concrete buildings.

■ ETRI Journal- Best Paper Award, 2012

Researchers from the Department of Electrical and Electronic Engineering, Eastern Mediterranean University (EMU) have been granted the “Best Paper Award for 2012” by ETRI (Electronics and Telecommunications Research Institute) Journal from South Korea. ETRI Journal is one of the leading journals in the field of Electronics and Telecommunications, which is indexed by SCI (Science Citation Index).



The award is given to the authors Asst. Prof Dr. Gholamreza Anbarjafari (former PhD student in EMU and current lecturer in Cyprus International University) and his supervisor Assoc. Prof. Dr. Hasan Demirel from the Department of Electrical and Electronic Engineering based on their paper [1] published in ETRI Journal in 2010 in the field of super resolution.

The paper proposes a novel super-resolution technique based on interpolation of the high-frequency subband images obtained by discrete wavelet transform (DWT) and the input image. The high-frequency subband images and the input low-resolution image have been used in generating a super-resolved output image by using inverse DWT. The details of the technique can be found in [1]. The technique can be applied to mobile devices to enhance the quality of the images/video acquired by low resolution cameras. Furthermore, the technique can easily be embedded in display driver controllers for improved graphics in display devices.

As part of the award, the researchers have been awarded a Certificate of Appreciation and an honorarium of 2,000,000 won (South Korean Currency). The following hyperlink can be used to access the page regarding the details of the award by ETRI Journal. <http://etrij.etri.re.kr/Cyber/impression.html>

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Beyond Parametrics: McLuhan's Communication Theory as an Anti-environment for Understanding the Effects of Technological Environments upon Cultural Change

By Assistant Professor Isaac Lerner.



Isaac Lerner

Introduction

Marshall McLuhan's work provides a communication theory of cultural change as an operational analysis of the effects of technological environments, in aid of heightening human perception regarding these effects on the development of human psychological traits and social practices. For example, he offers a gestalt analysis of the status of the dominant infrastructural or media 'environment' in the information age; the age of cyberspace as an environment constituted by the convergence of information technologies and global systems of telecommunications. In the current age, where the digital infrastructural environment of cyberspace envelopes and transforms all pre-existing cultural and natural habitats, the scale and pace of this transformation and its psychological, sociological as well as material effects escapes perception. McLuhan's prose-poetic style and his mosaic form of discourse satirize, or as he says "puts-on", the reader in order to attune perception so that understanding the effects of media is facilitated. This is an understanding, which provides a gestalt or figure-ground analysis, as a means of 'standing-under' the figurative surface of daily fluctuation in order to perceive the formal cause or ground-works shaping fundamental cultural paradigm shifts.

McLuhan's theory of cultural transformation links social evolution with major technological innovations and their concomitant sustaining and consequently self-qualifying infrastructural environments. In this regard, he has bracketed the evolution of the Western tradition between the past pre-literate, pre-historic societies and the present post-literate, post-industrial cultures of the emergent global village. In these cultures

it is the dominant communication systems, which qualify changes while concurrently shaping identity and social patterns. However, the perception of the effects of this cultural paradigm shift remains subliminal to most people, because of the scale, pace and complexity of change; except to those individuals, the artists, who delight in adapting their percepts and identities in sync with emergent conditions. McLuhan concurs with the poet, Ezra Pound, who claimed that artists were the "antenna of society".

For McLuhan, works of art are anti-environments that educate percept, and not concept. They are a means of perceptual attunement to shifting sensory thresholds that are correlates to environmental transformation and induced by emergent dominant technologies. In this context, he refers to the work of the poet and engraver William Blake, as well as James Joyce, borrowing their insight that, although 'we shape our tools which in turn shape us', this remains a highly subliminal process. Therefore, art as anti-environments provides the means for attuning perception and altering consciousness; a means of navigation through cultural transformation in order to safeguard survival. Today, the one thing that is constant is change itself, but due to the accelerating pace of technological innovation (a major theme in Alvin Toffler's book *Future Shock*) then merging perception by means of 'understanding media' as an anti-environmental theory becomes a critical task for social survival. This is the vital role that a theory of cultural transformation affords us when inquiry is directed towards the structural groundwork of society and not its content, whereby understanding becomes synonymous with the insight that 'the medium is the message'.

Anti-Environments as a Means of Perception

A major concern for McLuhan, in books such as *War and Peace in the Global Village* and *Through the Vanishing Point*, was that art as anti-environment has been used to either train perception within the context (with-the-text) of literate cultures or to merge perception in the environment of non-literate societies (this includes both pre-literate and post-literate cultures). The process of training perception has predominantly been the role of art in the Western individualistic tradition; a tradition whose aesthetics was in-formed by a cultural environment accommodated to the use of phonetic scripts (both chirographic and mechanistic modalities). The phonetic environment, as conditioning media ecology, biased visual perception because it transcribes speech into written text. These cultures have, by means of the evolution of various ecologies (parchment, papyrus, paper, mechanization), progressively intensified the abstract ability innate to written codification systems. As these ecologies evolved they progressively defined Western rational civilization as epitomized by the

modern 19th century industrial nation and metropolis.

Phonetic media and their concomitant environments nurtured the development of an abstract ability. In other words, these ecologies conditioned the abstraction of the eye from the interplay with the other senses. But by crossing this sensory threshold a 'visual space' emerged and qualified the development of social and cultural patterns constituting Western civilization. The qualities of the phonetic environment were fundamentally transformed by the invention of the mechanical press and uniform metal type, by Johannes Gutenberg in 1454. Mechanization intensified the visual bias which underwrote the emergence of the Scientific and Industrial Revolutions of the 17th and 18th centuries, respectively. Detachment, objectivity and analytical thinking are the hallmarks of classical science and modern societies; so that art was accommodated to educating perception towards this intensified visual cultural bias. In this context, art educated detachment by means of the contemporaneous forms of perspective and realist art. This art was anti-environmental in the manner of educating perception visually or as that ability to objectify or mirror experience. This perceptual training in detachment and abstraction nurtures a fragmented dichotomy between subject and object. In this way, human sensibility came to reify or objectify relationships in all departments of life. The scientific worldview sustains the dichotomy between an observer and the observed, just as the reader attends only to the content and not the form of the page. That is, this dichotomy does not afford a holistic awareness between figures and their ground and consequently, also fragments an understanding of how media environments effect social and cultural transformations.

A communication theory of cultural change provides a discourse resolving the Cartesian dichotomies in the manner of a phenomenological stance which is predisposed (as opposed to the scientific natural stance implicating subject-object dualities) to an inherent dialectical unity and identity between the individual and cultural infrastructures. This identity is the sustaining quality provided by technological environments understood as forms of extensions of individual and corporate embodiment; i.e. cultural environments as co-formal and co-creative operative extensions of human senses, faculties and organs. When this co-formative dynamic does not fragment the interplay or unity of the senses, as qualified by the phonetic environment, then the resultant sensory space is what McLuhan refers to as 'acoustic space'. This is a synesthetic space of sensory interplay with the associated effect whereby a participatory and interpretive mode of perception is sustained. In the context in-formed by acoustic space, art now educates human sensibilities by merging with the environment by the agency of total sensory interplay, rather than by means of simply training the ability for visual abstraction and detachment.

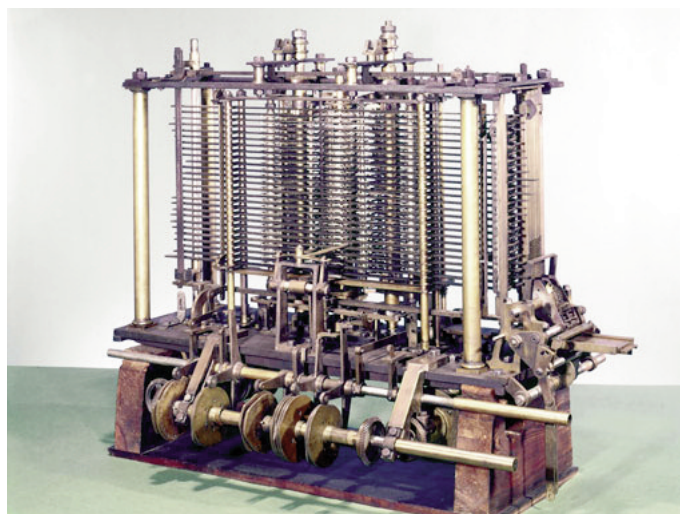
Acoustic space in-forms both the oral pre-literate cultures and the current electronic societies which engage individuals in holistic sensory involvement. It is only the abstract ability of the phonetic script, as compared to all other modes of communication, which fragments and separates the eye from the human sensorium and fosters the 'eye-I' detached sensibility towards life. In oral cultures, sustained by oral communication systems of various degrees of intensification and amplification (i.e. the natural voice or voice extended by telephone as far-hearing), a sense of immediate participation is sustained by the

simultaneity provided by discourse through an instantaneous field. In literate societies 'visual space', as qualified by the mechanized environment, affords the ability to 'act without reacting'. By contrast, in oral post-literate cultures, qualified by the current development of automated environments such as the internet (which represents a resonant global field as 'acoustic space'), action and reaction are 'virtually' and not materially simultaneous.

Electronic communications, as an all-at-once planetary envelop of environmental discourse, fosters the development of the global village as an emergent tribal society. In this milieu, art acts in the manner of an anti-environment shaping human perception, without fostering detachment which is anathema to the resonant ground of automated information societies. As societies change by means of technological innovation, art raises awareness of the subliminal effects inherent to emerging environments. It provides a means of avoiding breakup or severe breakdown as societies change or breakthrough from one cultural period to the next by means of technological innovation. Therefore, a study of cultures in terms of this anti-environment/environment dialectic acts as a guide to cultural evolution. As an informative dialectic of changing sense, sensibility and consciousness, McLuhan's communication theory of cultural transformation is an anti-environmental form for educating perception and thereby providing orientation and understanding in periods of social change.

Understanding Beyond Parametrics

In order to further develop an understanding of the anti-environment/environment co-formative dialectic, it would be useful to situate the idea of parametrics in relation to the function of algorithms. An algorithm provides a step-by-step procedure for processing input in order to produce a calculated or computational output. For example, the algorithm for multiplication computes two numbers in a manner whereby values are transferred from a units column to the tens column, and then the hundreds column and so on, according to the rules of multiplication as applied to the decimal system. As a computational mechanism, the algorithm is bracketed by a parametric numerical input and the calculated output. This total system of parametric input and algorithmic or programmed computation as well as output can be



processed mechanically (that is, by hand or machine) or electronically. In the nineteenth century Charles Babbage (1857-1911), invented the Difference Engine for generating accurate log tables. This Engine consisted of an elaborate bronze geared assemblage for mechanically processing parametric input through a clock-work computing mechanism that sequentially produced output in the manner of an assembly line. In the 1930's, Allen Turing (1912-1954) who was a logician and mathematician invented the Turing machine which was a formal model for algorithmic calculations that later played a major role in the development of electronic computers.

By means of electronic computers the total algorithmic process, consisting of input, algorithmic computation and output, became automated. In this regard, the architectural office environment, as automated media ecology, facilitates an inclusive, integrated and iterative process for producing total or parametric designs by means of appropriate input interfaces, computational software and digital graphic media for output. This contrasts dramatically with the mechanical office environment. The media ecology of the mechanical office produces drawings sequentially and separately and predominantly in the manner of plans, elevations and sections. By contrast, the automated office can produce a total and inclusive design, as a virtually real model, in the style that Patrik Schumacher refers to as 'parametricism'. In the context of the electronic office, input parameters can take the form of automated feedback digested by computational software which in turn generates iterated electronic variations of virtual models, as feedforward. Schumacher states that "Parametricism depends on the new digital scripting tools that allow for the set up and elaboration of complex associative relations." These complex associative relations depend on automated parametric feedback from which the style takes its name.

With regard to the topic of the environment/ anti-environment dialectic, designers do not generally attend to the office environment as a communication process and its concomitant effects upon design. They are primarily concerned with the content, or software modeling abilities and results, provided by the automated environment and do not usually perceive subliminal influences that prejudice design; which is the role of an anti-environmental form. However, there are certain architectural

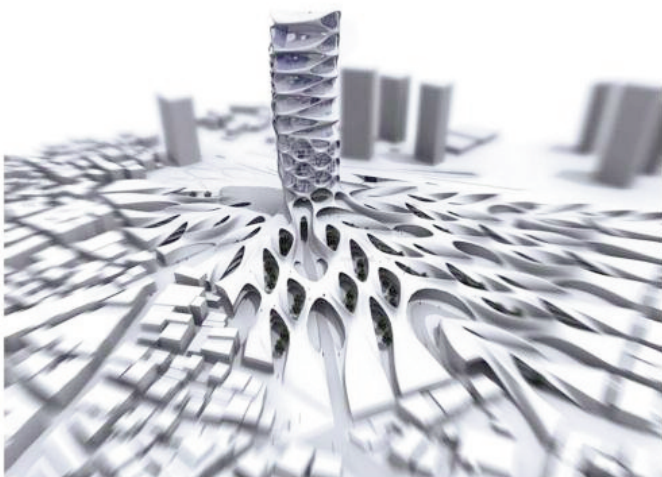
designs embodying a formal quality that may be termed 'buoyancy' which highlights a particular subliminal bias. This is a formal property that reveals the significant but subliminal dematerializing bias that is inherent to both the automated office environment and our electronic culture at large.

Applying Jean Baudrillard's work, one could refer to Parametricism as a third order simulacrum whereby this digital model no longer represents physical reality nor reflects or refers to any other referent. It becomes a self-sufficient virtually real condition or simulacrum in a hyperreal space of information processing as environmental groundwork. Both McLuhan and Baudrillard concur that digital media ecologies, functioning in terms of immaterial bits and bytes as opposed to atomic units composed of physical mass, subliminally bias human sensibility. That is, in any electronic media ecology one's perception of self image and world image is prejudiced as being discarnate rather than physically embodied. This is because an automated environment is prosthesis or extension of the human nervous system and brain, with the associated effect of altering perception of the body as a phantom limb. For McLuhan, the condition of technological prosthesis is synonymous with the self-amputation of the part of the body that is extended. In the case of the nervous system, that part is the entire body. Therefore, by using any automated environment to which we connect by means of any electronic device such as computers, ipads or mobile phones, we subliminally identify with dematerialized images of ourselves in the hyperreal medium of cyberspace. For example, on the mobile phone in the environment of global networked communication systems, the physical act of speech is translated into an acoustic image in-formed by immaterial bits and bytes resonating in cyberspace.

An architectural form that provides insight into the emerging effect of dematerialization on human sensibilities is anti-environmental. Today buoyant forms of design reveal the dematerializing bias inherent to automated environments in either the design office or the global village. The disclosure of this effect by means of buoyant architecture is not a factor of parametric style or of applying parametric technologies. Rather, it comes from an understanding derived from a study of the effects inherent in a technological environment that generates parametric architecture as the content of that environment. McLuhan's theory of cultural transformation provides this understanding of the environmental bias of automated practices and how this awareness is beyond just the knowledge of parametric design.

Beyond Parametric Design: The Parametric Environment of the Buoyant Architectural Form

Buoyant forms reveal a hidden dimension of the emergent automated environment. But this environment also obsolesces previous environments while at the same time retrieving and transforming their representational forms. This formative dynamic of retrieval as archetype is another expression of the environment/anti-environment dialectic, whereby architectural design become archetypes or works of art. This dynamic informs the work of Zaha Hadid and Patrik Schumacher. McLuhan provides examples of how the emergence of archetype is a product of the translation of the old environment within the context of

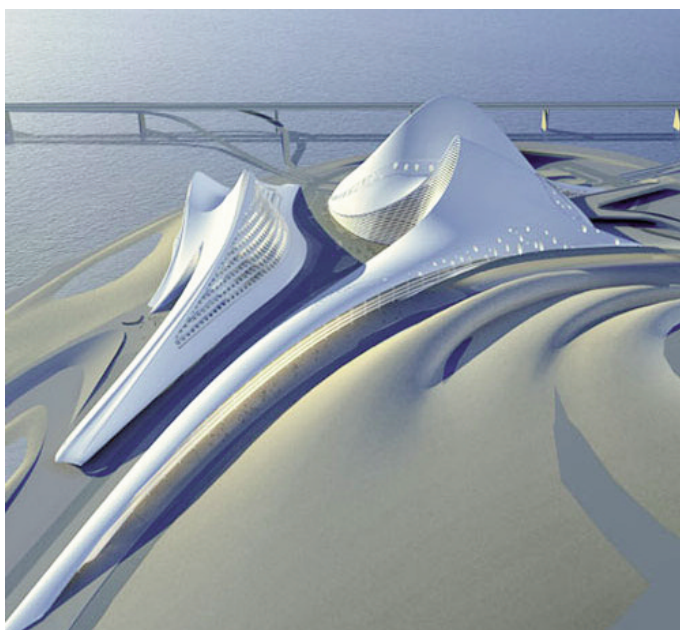


a new environment. McLuhan wrote:

As the planet becomes the content of a new information environment it also tends to become a work of art. Where railway and machine created a new environment for agrarian man, the old agrarian world became an art form. Nature became a work of art. The Romantic Movement was born. When the electric circuit went around the mechanical environment, the machine itself became a work of art. Abstract art was born.

When the agrarian culture of handcrafted work became obsolesced by the industrial factory environment, then designers like William Morris retrieved handcrafted agrarian forms as archetype in the style referred to 'arts and crafts'. Today, in the automated age of ubiquitous global connectivity and parametric information flows, the previous industrial world and modern architecture are contained within this emergent environment. In this way, the style of Parametricism, produced for example by Hadid and Schumacher, exemplify an archetypal form representing the retrieval of modern architecture in the context of automation (Figure 4 – Dubai Opera House).

In the automated parametric design environment the industrial sensibilities and concomitant visual prejudice for Euclidean geometry and cubic, linear, and static forms is subliminally translated by the lines of force inherent to a synesthetic automated surround. This new surround fosters a preference for non-Euclidean geometries and plastic, sculptural and dynamic fluid forms. These basic design characteristics are prevalent in the work of Hadid and Schumacher, but are subliminally imposed by environmental effects on the designer's senses and sensibility. However, with the eventual ubiquitous appearance of parametricism, this style will become cliché and the next round of the environmental/anti-environmental co-formative dynamic will result in a new archetype. The idea of the movement from archetype to cliché is an important concept in McLuhan's work which again exemplifies that his theory of cultural transformation as an anti-environment form which educates awareness beyond parametric or algorithmic thinking.



Conclusion

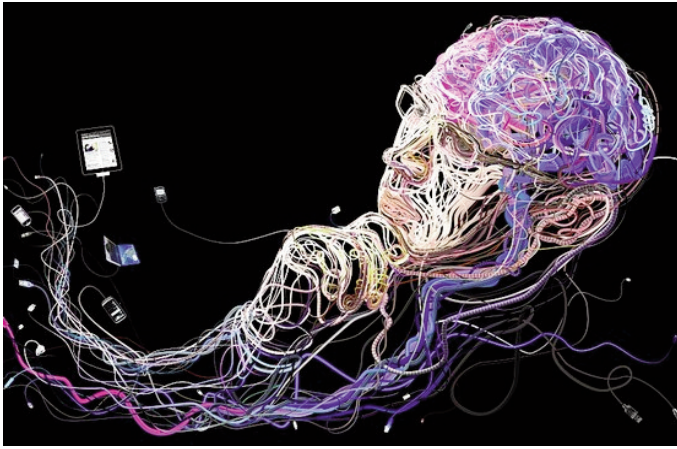
In the past, change was slow, but today by means of accelerated innovation, technology plays the role of art and reveals how media are modes of perception conditioned by technological environments. By analogy, McLuhan refers to the temperature in the bath that rises slowly as opposed to when the temperature is changed instantly. In other words, when would the bather know to scream in the former situation, whereas in the latter situation one's senses and feelings are immediately alerted by the rapid rise in temperature? Rapid change today, involving both instant information retrieval and communication, fosters pattern recognition by means of the all inclusive resonant field of instant global communications. Pattern recognition is nurtured in environments of automated local and global media ecologies. In these contexts, an understanding of media in terms of environmental infrastructures provides insight and navigation (i.e. from the Greek 'cybernetics') in a complex world of cultural evolution and potential identity crisis. With reference to the current global situation McLuhan wrote:

Unlike mammals, man has no nature but his own history – his total history. Electronically, this total history is now potentially present in the kind of simultaneous transparency...by placing our own nervous system around the entire globe. The first satellite ended "nature" in the old sense. "Nature" became the content of a manmade environment. From that moment, all terrestrial phenomena were to become increasingly programmed artifacts and every facet of human life now comes within the scope of the artistic vision...yet, whole environments can be programmed to accommodate the sensory preferences and needs of entire communities.

In the electric age, the cultural and national boundaries are resonant because of the instantaneity of the communication systems which sustains immediate response. Like a spider's web, if any strand is plucked then all strands and the web as whole respond immediately in a pattern of reciprocating communications. If any culture induces an excessive sensory spatial differential through design and innovation, which implies identity threat, then the effect becomes global today. This implies that the evolution of cultural territories by means of understanding the developmental effects of technological environments may be factored in by means of anticipatory environmental design. This provides a means for sustaining prosocial rather than anti-social traits, by "accommodating sensory preferences and needs of entire communities".

During the 21st century it is expected that the global community of nations will progressively experience accelerated change because the 5cal innovation, consequently fostering dis-ease; i.e. excessive stress and anxiety. In the 19th century, architects and engineers, as well as urban and social planners, modified the hardware infrastructures of the urban metropolis to improve hygiene, water resources, housing design, etc., in order to eliminate diseases such as cholera and typhus. In the 21st century, 'dis-ease' managed in terms of altering human perception by mediating technological innovation and resulting sensory thresholds can reduce identity crisis and corresponding levels of anxiety.

All technologies alter sensory equilibrium. This new equilibrium



alters human sensibility and consciousness; i.e. changes in technology are literal metaphors for transformations of the human mind. In terms of technological extensions and the effect upon the human sensorium, therefore, a communication theory of pragmatic aesthetics as applied to cultural evolution is an anti-environmental form. In this regard, McLuhan's work lies beyond not only architectural Parametricism but also urban Parametricism which, respectively, are contents of automated design environments. Therefore parametric design cannot anticipate total environmental change as that change is not only material nor algorithmic but social and psychological as well. A theory of cultural transformation that understands the co-formative, co-creative dialectic between environmental and anti-environmental forms would be an invaluable aid for total anticipatory design in the automated office.

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About the Researcher

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In vitro prospective effects of various traditional herbal coffees consumed in Anatolia linked to neurodegeneration

By Professor Dr. İlkyay Erdoğan Orhan



Introduction

The drinking of coffee is an important part of Turkish culture, one of the valuable traditions of daily life, and a way of socializing over centuries. Turkish coffee was first introduced during the Ottoman Empire in 1543 and people around the world have heard of the fame of Turkish coffee. It is also a symbol of Turkish hospitality, to offer coffee to the guests. Although the Turkish coffee prepared from the seeds of *Coffea arabica* L. (Rubiaceae) is the most famous, there are some other types of herbal coffees traditionally consumed in Turkey. Among them, “kenger coffee” obtained from *Gundelia tournefortii* L. (GT, tumble thistle, tumbleweed, Asteraceae), “çörek otu coffee” from *Nigella sativa* L. (NS, black cumin, Ranunculaceae), “hurma coffee” from *Phoenix dactylifera* L. (PD, date, Arecaceae), and “keçiboynuzu coffee” from *Ceratonia siliqua* L. (CS, carob, Fabaceae) are some of the herbal coffees consumed in Turkey. Although *Phoenix dactylifera* is not grown naturally in Turkey and is usually imported from Arab countries, this plant has been traditionally recorded as being used for memory enhancing purposes in our country (I.E.O.-personal communication). The above-mentioned coffees are obtained in the powdered form after roasting and grinding their seeds, which gives extra flavor and aroma. The preparation style of these coffees is similar to that of Turkish coffee, which is explained as follows: The powdered crude coffees are measured up to a certain amount, then mixed with water in a special coffee pot, stirred occa-

sionally, and brought to boil slowly until it starts to form a layer of foam on top, which takes about a few minutes.

Neurodegeneration is a complex and multifactorial process in the human brain and, unfortunately, the prevalence of neurodegenerative disorders such as Alzheimer’s disease (AD) and Parkinson’s disease (PD) is on the increase. On the other hand, effective treatment and medication are still absent to control these diseases. For AD, the most common form of (applied) medication used (class) is the cholinesterase inhibitors. Oxidized dopamine metabolites which have a crucial function in the degeneration of nigrostriatal dopaminergic neurons in PD are induced by tyrosinase (TYRO) through its oxidase activity and, therefore, the inhibition of TYRO is important in preventing PD. Another factor contributing to pathology of neurodegenerative diseases is oxidative stress, which leads to neuronal death.

In view of the fact that the aforementioned coffees are commonly consumed in Anatolia, especially in the southern part, and folkloric use of date is recorded for memory improvement, we decided to investigate the ethanol extracts of the aforementioned coffee samples along with their original sources from the seeds for their potential effects on neurodegeneration via enzyme inhibition against acetylcholinesterase (AChE) and butyrylcholinesterase (BChE), and tyrosinase (TYRO) using ELISA microplate reader. In addition, a sample of a commercial instant coffee brand (Nescafe®, green blend, GB) was also tested with other four traditional coffee varieties for a comparative purpose. Antioxidant activity of the extracts was measured using radical scavenging activity tests and metal-related tests including metal-chelation capacity, ferric-reducing antioxidant power (FRAP), and phosphomolibdenum reducing power (PRAP). Total phenol and flavonoid contents in the extracts were calculated using Folin-Ciocalteu and $AlCl_3$ reagents, respectively. The fatty oils obtained from the seeds of the tumble thistle and black cumin samples were analyzed for their fatty acids by gas chromatography-mass spectrometry (GC-MS).

AChE and BChE inhibitory activity assays

AChE and BChE inhibitory activity was measured by slightly modified spectrophotometric method of Ellman, Courtney, Andres, & Featherstone (1961). Electric eel AChE (Type-VI-S, EC 3.1.1.7, Sigma, St. Louis, MO, USA) and horse

serum BChE (EC 3.1.1.8, Sigma, St. Louis, MO, USA) were used, while acetylthiocholine iodide and butyrylthiocholine chloride (Sigma, St. Louis, MO, USA) were employed as substrates of the reaction, respectively.

Tyrosinase inhibitory activity assay

Inhibition of tyrosinase (EC 1.14.1.8.1, 30 U, mushroom tyrosinase, Sigma) was determined using the modified dopachrome method with L-DOPA as substrate.

Antioxidant activity by radical-formation methods

DPPH radical scavenging activity

The stable 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical scavenging activity was determined by the method of Blois (1958).

DMPD radical scavenging activity

Principal of the assay is based on reduction of the purple-colored radical DMPD⁺ (N,N-dimethyl-p-phenylenediamine) (Schlesier, Harvat, Bohm, & Bitsch, 2002).

Antioxidant activity by metal-related methods

Metal-chelation effect

The metal-chelating effect of the extracts via ferrous ion was estimated by the method of Chua, Tung, & Chang (2008).

Ferric-reducing antioxidant power (FRAP) assay

The ferric-reducing power of the extracts was tested using the assay of Oyaizu (1986).

Phosphomolibdenum-reducing antioxidant power (PRAP) assay

In order to perform PRAP assays on the extracts, each dilution was mixed 10% phosphomolybdic acid solution in

ethanol (w/v) (Falcioni, Fedeli, Tiano, Calzuola, Mancinelli, & Marsili, 2002).

GC and GC-MS conditions for fatty oil analysis

GC analysis was performed on an Agilent 6890N Network GC system, under the following conditions; Column: HP Innowax Capillary (60.0 m × 0.25 mm × 0.25 μm); oven temperature program: The column was held initially at 60°C for 3 min after injection, then, increased to 185°C with 10 °C min⁻¹ heating ramp for 1 min, and increased to 200°C with 5 °C min⁻¹ heating ramp for 10 min. Later, the final temperature was increased to 220°C with 5°C min⁻¹ heating ramp for 20 min; injector temperature: 250°C; detector (FID) temperature: 275°C; carrier gas: Helium; inlet pressure: 40.65 psi; linear gas velocity: 39 cm s⁻¹; column flow rate: 2.7 mL min⁻¹; split ratio: 20:1; injection volume: 1 μL.

GC-MS analysis was performed on an Agilent 6890N Network GC system combined with Agilent 5973 Network Mass Selective Detector. The GC conditions were as follows: column: HP Innowax Capillary (60.0 m × 0.25 mm × 0.25 μm); oven temperature program: The column held initially at 60°C for 3 min after injection, then increased to 185°C with 10 °C min⁻¹ heating ramp for 1 min and increased to 200°C with 5°C min⁻¹ heating ramp for 10 min. Then, the final temperature was increased to 220°C with 5°C min⁻¹ heating ramp for 20 min; injector temperature: 250°C; carrier gas: Helium; inlet pressure: 40.65 psi; linear gas velocity: 44 cm s⁻¹; column flow: 2.9 mL min⁻¹; split ratio: 20:1; injection volume: 1.0 μL. MS conditions were regulated as follows: ionization energy: 70 eV; ion source temperature: 280°C; interface temperature: 250°C; mass range: 35-450 atomic mass units.

Identification of the components was assigned by comparison of their retention times and mass spectra with corresponding

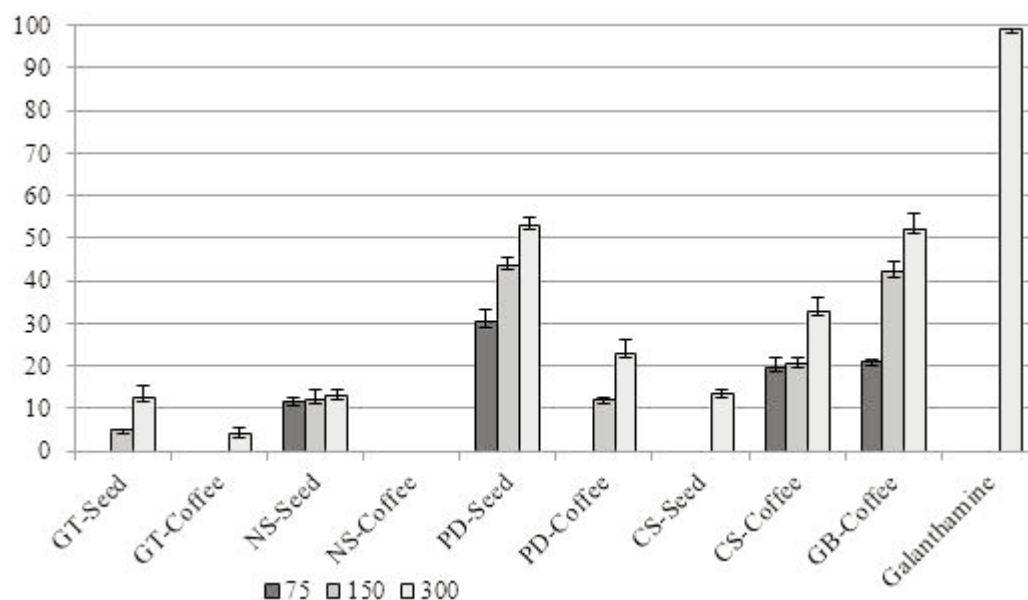


Fig. 1. AChE (A) and BChE (B) inhibitory activity (inhibition%±S.E.M.) of the ethanol extracts of the coffee and seed samples (GT: Gundelia tournefortii, NS: Nigella sativa, PD: Phoenix dactylifera, CS: Ceratonia siliqua, GB: Green blend-Nescafe®, concentrations in μg mL⁻¹, galanthamine at 100 μg mL⁻¹)

data from reference compounds and by comparison of their mass spectra with Wiley and Nist libraries.

Results

Enzyme inhibitory activities of the extracts

AChE and BChE inhibitory activity of the ethanol extracts obtained from the seed and coffee samples of GT, NS, PD, CS, and GB is shown in Fig. 1. Among the extracts tested at 75, 150, and 300 $\mu\text{g mL}^{-1}$; the seed extract of PD and the coffee extract of GB were found to have the highest inhibition against AChE (52.96 \pm 1.72% and 52.26 \pm 3.79% at 300 $\mu\text{g mL}^{-1}$, respectively). In BChE inhibitory assay, the most effective extracts belonged to the seeds of PD and GT (83.22 \pm 2.22% and 41.07 \pm 0.55% at 300 $\mu\text{g mL}^{-1}$, respectively). The extracts usually displayed either no or weak inhibition towards TYRO. In this assay, the highest inhibition was caused by the seed extract of NS and the coffee extract of GT (36.30 \pm 1.02 and 34.70 \pm 3.59% at 200 $\mu\text{g mL}^{-1}$, respectively) (Fig. 2).

Antioxidant activity of the extracts

The extracts were screened for their anti-radical effect against DPPH and DMPD radicals as shown in Table 1. The seed and coffee extracts of PD, CS, and GB exerted a remarkable radical scavenging effect over 90% against DPPH. However, all of the extracts had a low effect below 40% in DMPD scavenging assay. In FRAP and PRAP tests (Table 2), the seed extract of PD and the coffee extract of GB gave the highest absorbance, in which the higher absorbance is indicative of higher antioxidant power. Our results obtained from the metal-chelation capacity test showed that the extracts had a

moderate level of activity where the seed extract of GT possessed the best metal-chelation capacity (33.57 \pm 1.75% at 3000 $\mu\text{g mL}^{-1}$) among the extracts tested.

Total phenol and flavonoid contents of the extracts

Total phenol content of the extracts was calculated according to the equation ($y=0.1.3879x+0.0508$, $r^2=0.9928$) as gallic acid equivalent (mg g⁻¹ extract), whilst their total flavonoid contents were determined in accordance with the equation ($y=5.6661x+0.0903$, $r^2=0.9994$) obtained by calibration curves as quercetin equivalent (mg g⁻¹ extract) (Table 1). According to the results; the GB-coffee (90.23 \pm 1.19 mg g⁻¹), PD-coffee (76.30 \pm 4.59 mg g⁻¹), and PD-seed (74.86 \pm 2.89 mg g⁻¹) extracts were the richest in total phenol contents.

Fatty acid compositions

Fatty acid compositions of the seed oils of GT and NS were analyzed by GC-MS, whereas the seed oils of PD and CS could not be analyzed because of their very low oil yield. Both of the analyzed oils contained linoleic acid as the dominant fatty acid, followed by oleic acid (Table 3).

Discussion

Our findings revealed that, among the tested extracts, the seed extracts except for CS showed higher inhibition against AChE and BChE than their coffee products. However, in metal-chelation test, the results were vice versa. The seed extract of PD and the coffee extract of GB were the most active extracts in the antioxidant assays and also were the richest extracts in terms of total phenol content. Therefore, high antioxidant activity of these extracts could be attributed

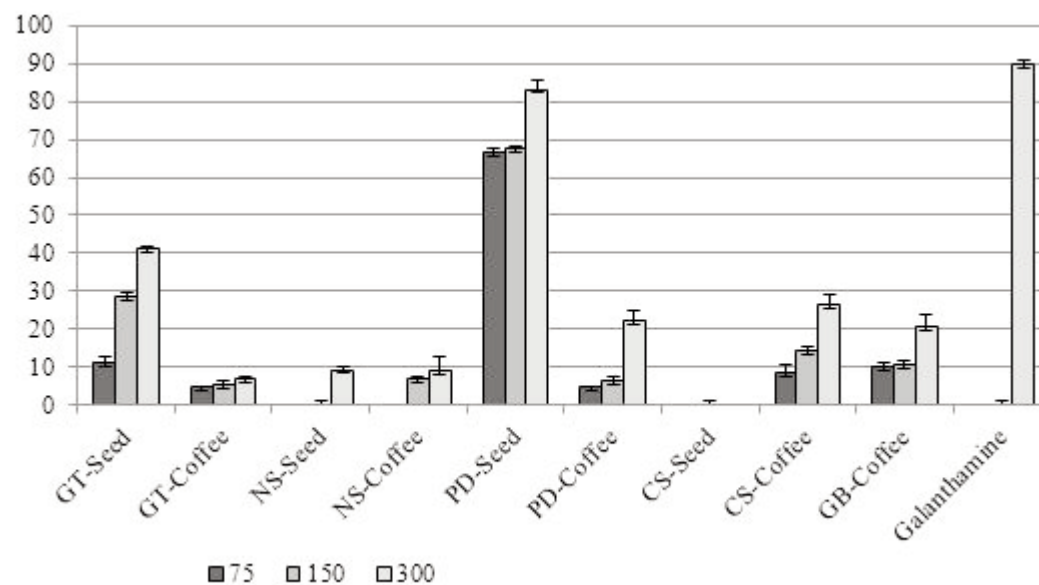


Fig. 1. BChE (B)

to their rich phenol contents. Consistent with our findings, the date was stated to be rich in antioxidants of phenolic and carotenoid derivatives in previous studies (Al Farsi & Lee, 2008; Reddy, Sreeramulu, & Raghunath, 2010; Baliga, Baliga, Kandathil, Bhat, & Vayalil, 2011). The current results confirmed the local knowledge on PD for memory-enhancement depending on high cholinesterase inhibitory and antioxidant effects. In a study by Juhaimi, Ghafoor, & Ozcan (2011), the seeds of seven *Phoenix dactylifera* (date) varieties collected from Saudi Arabia were analyzed for their fatty acid contents.

The major fatty acid was established as oleic acid, whereas we found linoleic acid as the main fatty acid in our date seed oil. In another study on several date fruit cultivars of Tunisian origin (Chaira, Smaali, Martinez-Tomé, Mrabet, Murcia, & Ferchichi, 2009), the high antioxidant activity of the cultivars was attributed to their rich total flavonoid contents as quercetin equivalent. However, in our study, date seeds did not have total flavonoid content (Table 1). These phytochemical differences might be influenced by their origin of cultivation as well as some other factors. In this regard, Al-Farsi, Alasalvar, Morris, Baron, & Shahidi (2005) investigated the antioxidant activity and phenolic ingredients of the fresh and sun-dried dates of three native varieties from Oman and concluded that the sun-drying process caused a notable loss in antioxidant constituents of the date varieties.

On the other hand, our literature survey indicated that there has been no previous studies (report) on the cholinesterase inhibitory effect of *Phoenix dactylifera* (date) up to date. However, a few studies related to neuroprotection have been reported on date extracts using different methods, which support our findings and folkloric use of the date. For

instance; Pujari, Vyawahare, & Kagathara (2011), reported strong neuroprotective activity of the methanolic extract of the date fruits (purchased in India) in rats with cerebral ischemia induced by occluding bilateral common carotid arteries. The aqueous date fruit extract from Iran was also examined for its neuroprotective action in rats with neuronal damage induced by cerebral ischemia and they concluded that the efficiency of the extract in focal cerebral ischemia is presumably due to its antioxidant property (Majid, Marzieh, Shahriar, Zahed, & Pari, 2008).

Ceratonia siliqua (CS) was one of the most effective extracts in the antioxidant assays performed herein and its coffee extract also exhibited a moderate level of inhibition against the enzymes tested. Although there has been no report on cholinesterase inhibitory activity of this plant so far, several studies (Kumazawa, Taniguchi, Suzuki, Shimura, Kwon, & Nakayama, 2002; Custódio, Escapa, Fernandes, Fajardo, Aligué, Alberício, Neng, Nogueira, & Romano, 2011) have described a remarkable antioxidant effect of different parts of CS, which is in accordance with our data.

NS is an important food and medicinal plant in Turkey, whose ancient seeds were found to be used as a remedy by the Hittites in Anatolia about 3600 years ago (Salih, Sipahi, & Oybak-Donmez, 2009). The seed extract of NS had the highest TYRO inhibitory effect in our assay, while its seed and coffee extracts exerted a moderate level of antioxidant activity, which was correlated with its low total phenol content. Although various studies have been performed on antioxidant activity of black cumin extracts (Ilhan, Gurel, Armutcu, Kamisli, & Iraz, 2005; Mariod, Ibrahim, Ismail, & Ismail, 2009), we have not encountered any report evaluating cholinesterase and tyrosinase inhibitory effects in black cumin. On the other hand, thymoquinone, a main constituent in NS, was found to protect primary dopaminergic neurons

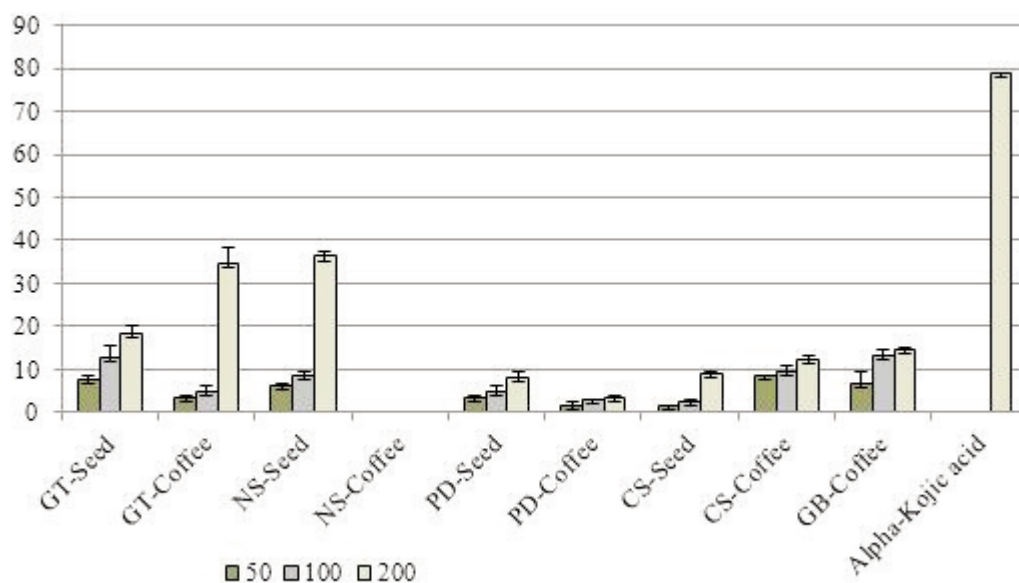


Fig. 2. TYRO inhibitory activity (inhibition% \pm S.E.M.) of the ethanol extracts of the coffee and seed samples (GT: *Gundelia tournefortii*, NS: *Nigella sativa*, PD: *Phoenix dactylifera*, CS: *Ceratonia siliqua*, GB: Green blend-Nescafe®, concentrations in μ g mL⁻¹, alpha-kojic acid at 100 μ g mL⁻¹)

against MPP(+) and rotenone relevant to Parkinson's disease (Radad, Moldzio, Taha, & Rausch, 2009) and, thus, TYRO inhibitory activity of the seed extract of NS could be searched since thymoquinone might be inhibiting this enzyme and hence, being responsible for the inhibitory effect of this extract.

Previous papers on fatty acid composition of the black cummin oil, in which linoleic acid was established as the main fatty acid, were in accordance with our findings (Nergiz, & Otles, 1993; Kokdil & Yilmaz, 2005).

GT is a well-known medicinal and edible plant, particularly in the southern part of Turkey and also one of the less-searched medicinal plants in the world. In this study, the seed extract of GT was shown to display enzyme inhibition to some extent and a notable radical scavenging effect against DPPH. Its coffee extract had also remarkable TYRO inhibitory and metal-chelation capacity. The seeds of GT growing in Turkey were earlier investigated by Coruh, Sagdicoglu-Celep, Ozgokce, & Iscan (2007) using DPPH radical scavenging and lipid peroxidation inhibition methods. The authors stated that the seed extract exhibited a noteworthy antioxidant activity, which is in agreement with our findings. On the other hand, we report herein the fatty acid composition of the seed oil of GT for the first time since we have not found any previous data on its fatty acids. Our results confirm its rich content in linoleic and oleic acids, which are essential unsaturated fatty acids beneficial for health.

We also examined the ethanolic coffee extract of a commercial coffee brand prepared from green coffee beans and found that (to have that) the extract had a notable AChE

inhibiting effect as well as a potent antioxidant activity in the assays applied. The extracts also possessed the highest total phenol content, which is attributable to its high antioxidant effect, as reported formerly (Naidu, Sulochanamma, Sampathu, & Srinivas, 2008).

In the current study, our aim was also to compare the tested bioactivities and total phenol and flavonoid contents of the seed and coffee extracts and to find out if the roasting process could influence bioactivity and phytochemical contents. Our evaluation on these extracts revealed that no clear conclusion could be given according to these results, as in some cases, the seed extracts are more active and vice versa. In our recent similar study (Orhan, Senol, Gulpinar, Sekeroglu, Kartal, & Sener, 2011), we assessed in vitro neuroprotective activity of various terebinth coffee brands obtained from the fruits of *Pistacia terebinthus* in Turkey using the same experimental models herein and found that the terebinth coffees produced after roasting of the powdered fruits exhibited a greater activity in these tests as compared to the fruits per se. The roasting process caused an elevation especially in the antioxidant activity due to the increase in total phenol and flavonoid amounts. Relevantly, Del Castillo, Ames, & Gordon (2002) also stated that a roasting time of 10 minutes is the ultimate time needed for producing coffee with optimal oxygen scavenging and chain breaking activities in vitro. However, the roasting process applied in preparation of the coffee varieties investigated herein did not have a distinct increasing or decreasing effect.

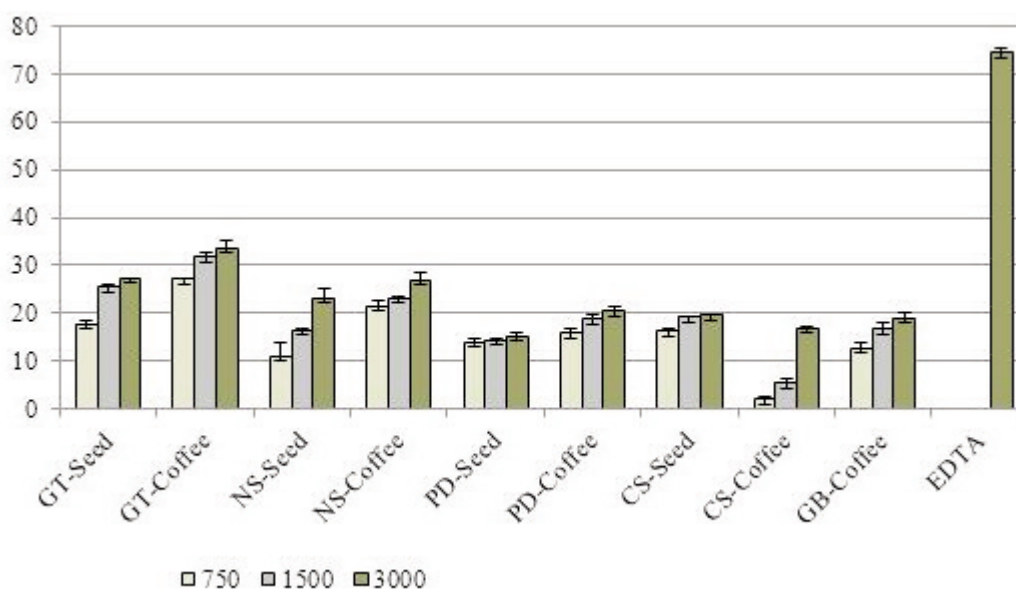


Fig. 3. Metal-chelation capacity (inhibition%±S.E.M.) of the ethanol extracts of the coffee and seed samples (GT: *Gundelia tournefortii*, NS: *Nigella sativa*, PD: *Phoenix dactylifera*, CS: *Ceratonia siliqua*, GB: Green blend-Nescafe®, concentrations in $\mu\text{g mL}^{-1}$, EDTA at 100 $\mu\text{g mL}^{-1}$)

Conclusion

The results obtained in this study revealed that, among the tested extracts, the seed extract of PD has a significant effect in cholinesterase inhibition and antioxidant assays, which confirms the claimed folkloric utilization of the plant by the applied methods. To the best of our knowledge, this is the first study describing cholinesterase and tyrosinase inhibitory activity of the seed and coffee extracts of GT, NS, PD, and CS as well as antioxidant activity of the coffee extracts. We also report the fatty acid composition of the seed oil from GT for the first time in this work. The research that we are conducting presently (Our preferential research is in progress) to elucidate active constituents of *Phoenix dactylifera* with strong anticholinesterase and antioxidant activity is in progress.

About the Researcher

Prof. Dr. İlkay Erdoğan Orhan was born in 1972 in Ankara. She graduated from the Faculty of Pharmacy, Gazi University (Ankara, Turkey) with B. Pharm. Degree in 1993 and started her M.Sci. at the Department of Pharmacognosy at the same faculty. She earned her first M.Sci. degree in 1996 with a scholarship awarded by the Turkish Scientific and Technological Research Council (TUBITAK) and then, studied for her second M.Sci. degree in Marine Pharmacognosy at the University of Ryukyus (Okinawa, Japan) with a MONBUSHO scholarship awarded by the Japanese Ministry of Education between 1996-1998. She received her Ph.D. degree from at the Department of Pharmacognosy, Faculty of Pharmacy, Gazi University (Ankara, Turkey) in 2002 and was a visiting scientist in the Department of Chemistry, University of Winnipeg (Canada) in 2003 under the support of NATO-B1 fellowship provided by TUBITAK. She was promoted to Assoc.Prof. by the Higher Education Council of Turkey (YÖK) in 2004 and then, to full professor position at the Faculty of Pharmacy, Gazi University in 2009. She has so far published 133 papers in international scientific journals, edited a book and contributed nine book chapters and is presently the dean of the Faculty of Pharmacy at EMU.

Some of the awards presented to Prof. Orhan are given below;

2006 “*Scientific Encouragement Award*” given by the *Academy of Pharmacy-Association of Turkish Pharmacists*.

2010 “*TWOWS (OWSDW)/Elsevier Award for Young Woman Scientists for Asia-Pacific Region*” given by the *Organization for Women in Science for the Developing World (OWSDW-formerly TWOWS-Italy)*

2010 “*Science Award in Biology*” by *COMSTECH (Organization of Islamic Countries (OIC) Standing Committee on Science and Technological Cooperation)*

2011 *Young Woman Scientist Award (in Life Sciences) by L’Oreal & Turkish Academy of Sciences*

2011 *Young Affiliate Representative of the Central & South Asia region (ROCASA) of Third World Academy of Sciences (TWAS) (2011-2016)*

2012 *First Honor Award in total scientific publication by Gazi University*

Microbial Geotechnics

By Hamed Khodadadi Tirkolaei



Hamed Khodadadi Tirkolaei

The following is a brief explanation of an innovative and interdisciplinary subject called “Microbial Geotechnics” which has been recently developed as a branch of Geotechnical Engineering. This is the field in which I am working on my PhD thesis under the supervision of Dr. Huriye Bilsel. There is great research opportunity in this field which has much in common with Geotechnical Engineering, Biology, Chemistry, and Material science, Geosciences, Environmental Engineering and Architecture. I would hereby, like to extend an invitation to all interested scholars from the traditional disciplines to join us in the “Big Soils” group (see Big Soils in Facebook and LinkedIn).

Introduction

“All buildings today have something in common. They are made using Victorian technologies. This involves blueprints, industrial manufacturing and construction using teams of workers. All of this effort results in an inert object. And that means that there is a one-way transfer of energy from our environment into our homes and cities. This is not sustainable. I believe that the only way that it is possible for us to construct genuinely sustainable homes and cities is by connecting them to nature” (beginning part of Rachel Armstrong’s speak in TED, 2009). The high-energy consumptive practices in the new industrial world, specially in the recent decades, has begotten carbon sequestration, infrastructure rehabilitation, brown fields clean-up, hazardous waste disposal, water resource protection and global warming as complicated and serious challenges for the current century.

The majority of the aforementioned challenges are in direct or indirect relation with soil through being supported on, occurring within, being enabled by or being grown from it (DeJong et al. 2011). Conventional soil scientists’ views, which are isolated in the framework of a particular discipline, are one of the most important reasons for the formation of these challenges. For instance, geotechnical engineers just consider the mechanical properties of soil, environmental engineers only try to remove the contamination from soil, and agricultural engineers make all their efforts to get the best productivity regardless of taking the other aspects into account. So, developing a multidisciplinary perspective in soil sciences is necessary to overcome the challenges.

In this way, Microbial Geotechnics (also named Biogeotechnologie

or Microbial Geotechnology) has been recently developed as an innovative and multidisciplinary branch of Geotechnical Engineering. This branch brings the Biology, Geotechnical Engineering and Environment Engineering and other related majors together. With this technic, micro-organisms are used as micro-engineers for the improvement of the properties of soils with consideration for ecological concerns. The technique is more sustainable than the common used methods which create environmental concerns and are expensive.

There are about one hundred billion bacteria per kilogram of soil, each of which can perform many roles. It therefore, would be a surprising discovery if we could employ and convince them to work for us. This would be possible by using the two following approaches:

- Bio-stimulation: addition of suitable nutrients to active desired organisms. And/or
- Bio-augmentation: addition of specialist bacteria to do the job.

Microbes can affect the physical and/or chemical properties of soil. In physical modification, mechanical properties of the soil like strength, stiffness and permeability are mediated by microbial processes. It is called “Bio-mediation of geomechanical processes”. In the chemical alteration of soils, pollution can be remediated by microbial reactions. This process is called “Bio-remediation of contaminated soil and groundwater” (see the table below).

Generally, microbes for civil engineering purposes have been in use for less than a decade, although the ability of micro-organisms for mineral precipitation had been discovered earlier on. Whiffin (2004) used the MICP technique for bio-cementation. In 2006, the national research council of US expressed that Geotechnicians have only relatively recently become aware of the potential of biological applications for improving the mechanical properties of soil. It also recognized the great potential of biological techniques for the practice of Geoengineering in the 21st century. Van Paassen et al. (2007 and 2009), registered patents for the use of the microbial techniques in geotechnical engineering. The applications of the techniques on an industrial scale have not yet been reported.

In my PhD Thesis, I am working on the “Improvement of mechanical properties of sand by using the bio-cementation technique”.

Microbial Geotechnics	Bio-mediation of geomechanical process	Bio-precipitation	Bio-mineralization*	<i>e.g. mitigation of earthquake liquefaction potential, and increasing bearing capacity of soil</i>
			Bio-film / Bio-polymers	<i>e.g. sealing soil particles to prevent mineral erosion</i>
			Bio-clogging	<i>e.g. clogging the soil pores to prevent seepage in an undesired direction in construction pits</i>
		Mineral transformation		<i>e.g. transformation of expansive clay to non-expansive at the base of construction</i>
	Biogenic gas production		<i>e.g. mitigation of earthquake liquefaction potential</i>	
Bio-remediation of contaminated soil and groundwater			<i>e.g. removal of radioactive pollutants (Sr²⁺) from soil and water</i>	

* Bio-cementation

In this study, the effect of microbial induced calcite (a type of calcium carbonate mineral) precipitation (MICP) as a binding cement agent between sand grains is going to be investigated. The innovations of the study compared to other similar studies are as follows:

- Optimizing the amount of strength versus permeability
- Investigation of treated soil from the view point of Unsaturated Soil Mechanics

Methodology

There are some ureolytic bacteria which can alter the pore fluid chemistry and act as a catalyst to speed up the urea hydrolysis reaction which is resulted in calcite precipitation. *S.pasteurii* is a highly urease active bacteria which has been commonly used, as reported in the literature, and is going to be applied in this study. This bacterium is cultured and reproduced by the preparation of required nutrients and suitable environmental conditions. An extensive parametric study is statistically done to recognize the dominating parameters on the ureas activity of bacteria and the amount of precipitated calcite. Then the bacteria solution, under optimum conditions resulting in high strength and low permeability is injected into the sand. Finally, a comprehensive series of soil mechanics tests will be carried out to measure the changed properties.

Conclusion

- The word sustainability implies a symbiotic and non exploitative relationship with nature!
- Numerous micro-organisms as micro-Geotechnical engineers are present in all soil which can be employed to work for us!
- A geotechnical engineer should be aware of biological techniques for soil improvement.
- Biology has a significant role to play in soil improvement.
- Microbial Geotechnics is an innovative and multidisciplinary branch of Geotechnical Engineering.
- There is great potential for research in this field.

References

- Armstrong, R., 2009, "Architecture that repairs itself?" www.ted.com
- DeJong, J., Soga, K., Banwart, S., Whalley, R., Ginn, T., Nelson, D., Mortensen, B., Martinez, B., Barkouki, T., (2011). "Soil engineering in vivo: harnessing natural biogeochemical systems for sustainable, multi-functional engineering solutions", *Journal R. Soc. Interface*, 8, 1-15.

About the Researcher

Hamed Khodadadi Tirkolaei is currently pursuing his PhD at the Department of Civil Engineering. He has been working as a Research Assistant in the same Department since 2011. Tirkolaei is a Professional Engineer and a member of structural and foundation design, Mazandara, Iran, (2011-Present).



In this issue, EMU Research Newsletter hosts a Ph.D. student Aliyu Kabir Musa from the Department of Computer Engineering

- **Could you tell us a bit about yourself? Your nationality, academic and professional background, experience, research activities.....?**

My name is Aliyu Kabir Musa. I came from Nigeria in 2007 to study at EMU. I finished my Bachelor degree in Information Technology from the School of Computing and Information Technology. I received my Master's degree in Computer Engineering from the Department of Computer Engineering. Now I am currently enrolled in PhD program in the Department of Computer Engineering.

- **Could you please give us some information on your department and the post graduate programmes?**

I personally consider Computer Engineering one of the best departments at EMU. The professors and the environment create a good atmosphere for students to work and carry out their research activities. In the graduate programs, there are many courses offered within different research areas in the department for students so that they can have various options in their special area of research interest.

- **Could you define 'good research' for us?**

A good research addresses an important issue and uses scientific methodology that leads to a scientific investigation or inquiry to discover and interpret facts, revise accepted theories or laws in the light of new facts, and have a practical application that has implications for the field of study.

- **Could you tell us about the research you've been working on with your supervisee and its significance in your research field?**

The main aim of my research is to investigate the genetic variations in neurotransmitter receptors that are associated with certain behavioral disorders. This study focuses on finding the relationships between neurotransmitter receptors and behavioral disorders from text data using computational tools. We have constructed a database containing neurotransmitter receptor-disorder association based on biomedical literature using the text mining approach. This database and web interface enables storage of and access to the relevant neurotransmitter receptor – disorder data. End users such as biologists, pharmacologists, bio-informationists and biomedical researchers will be able to view annotations, search for biological data, validate linked resources, and create new information to apprehend new concepts as they arise.

- **Do you have plans to promote this research to a wider audience? (conferences, publications)**

Yes, since we have already published in two international conferences, our main aim is to promote our research as a journal publication based on the new findings of our research.

- **What has been the most fruitful aspect of the collaboration between you and your supervisee?**

Both of my supervisors (Assoc Prof. Dr. Ekrem Varoğlu from the Dept. of Computer Engineering and Assoc. Prof. Dr. Bahar Taneri from the Dept. of Biological Sciences) have been helpful towards the achievement of a positive outcome in this particular research work. The best contribution to my research was due to the amount of time and effort that we spent together as both of my supervisors have the knowledge, experience and expertise in the biomedical domain. Our collaboration, team work, group ethics and good communication helped us to derive good and meaningful results out of our research.

- **What advice would you give to researchers involved in post-graduate research?**

My advice is to work hard and focus on the related things that matters in research by using all available resources.

Spring (2011- 2012) - Fall (2012- 2013) Postgraduate Degrees

The Following is the list of students who have successfully completed their postgraduate degrees in Spring 2011 - 2012 and Fall 2012 - 2013. This list has been provided by EMU Institute of Graduate Studies and Research on 15 January 2013.

■ LL.M. ■

Ramadan Şanıvar

Thesis Title: İnsan Haklar Avrupa Sözleşmesi'nin 6. Maddesi Çerçevesinde Adil Yargılanma Hakkı ve Saniğa Tanınan Temel Haklar

Supervisor: Sultan Üzeltürk

Hakan Bilgeç

Thesis Title: Şahis Şirketlerihde Ortakların Kişisel Alacaklarına Tanınan Haklar

Supervisor: Aynur Yongalık

■ M.A. ■

Communication and Medial Studies

Mana Ahmadivostakolae

Thesis Title: Representations of Menstruation in Hollywood films: Carrie, The Blue Lagoon, Slums of Beverly Hills

Supervisor: Mashoed Bailie

Joy Uzezi Ogbimi

Thesis Title: Western Media Coverage of Somalia Famine

Supervisor: Süleyman İrvan

Ersen Çağlar Soydemir

Thesis Title: Product Placement Strategy Used in Turkish Television Series: Case Study of Eastern Mediterranean University' Staff and Students

Supervisor: Bahire Özad

Mert Yusuf Özlük

Thesis Title: Attitudes of Youth Towards Mobile Phone Use

Supervisor: Bahire Özad

Halil İbrahim Duranay

Thesis Title: The Vanishing Point of Modern Subject in At-house Cinema: The Mirror and the Turin Horse

Supervisor: Levent Kavas

Educational Sciences

Hasret Kaymakam Karagil

Thesis Title: Perceptions of Teachers Regarding Three Data Sources

and Curricular Elements in Elementary Schools of TRNC

Supervisor: Hüseyin Yaratın

Emine Kozok

Thesis Title: An Inventigation of Acedemic Motivation of Middle School Students in Nicosia, North Cyprus.

Supervisor: Hüseyin Yaratın

English Language and Literature

Fatih Parlak

Thesis Title: On Syphilis in the Ottoman Empire and Turkish History Writing

Supervisor: Slobodan Ilic

Hatice Avcı

Thesis Title: The Contribution of Romanticism to Modernism as Seen in Keats, Ibsen and Yeats.

Supervisor: Can Sancar

Buket Altınay

Thesis Title: 1984 and V for Vendetta: Identity, Anarchy and Dystopic Futures

Supervisor: Nihcolas Pegan

English Language Teaching

Engin Karaman

Thesis Title: Turkish Undergraduate Students' Emotional Intelligence and their Performance on English Language Test

Supervisor: Ali Sidki Ağazade

Emine Uluçaylı

Thesis Title: Attitudes, Motivation and Anxiety of Young EFL Learners

Supervisor: Naciye Kunt

Parinaz Memarian

Thesis Title: The Use of Request Strategiesin English by Iranian Graduate Students: A case study

Supervisor: Javanshir Shibliyev

Zehra Tözün

Thesis Title: Global English Language and Culture Teaching in TRNC Secondary EFL Classroom: Teachers' Perceptions and Textbooks

Supervisor: Necdet Osam

Özlem Özyılmaz

Thesis Title: An Investigation into ELT Students' Academic Achievement and their Use of Language Learning Strategies Across Gender Groups

Supervisor: Necdet Osam

International Relations

Ulo Benjamin Pewan

Thesis Title: International Governmental Organizations and the Challenges Faced by the International Civil Servants: The Case of the European Union and the African Union in Light of United Nations Practice

Supervisor: Moncef Khaddar

Nihal Asadov

Thesis Title: The Efficacy of the Nuclear Non-Proliferation Regime

Supervisor: Wojciech Forsyński

Fatima Mushurova

Thesis Title: The Creation of New States in International Law: The Case of South Ossetia's and Abkhazia's Unilateral Declarations of Independence

Supervisor: Wojciech Forsyński

Olufolahan Oluwapelumi Osunmuyiwa

Thesis Title: Transnational Corporations and Corporate Responsibility: Environmental Law and Human Rights Damage in Nigeria

Supervisor: Erol Kaymak

Marketing Management

Sahar Meshksar

Thesis Title: A Comparative Study of HRM Practices Based on Hofstede Cultural Dimensions

Supervisor: Cem Tanova

Farnaz Nooshabadi

Thesis Title: Factor Influencing Impulse Buying of Cosmetic Staffs: Evidence From North Cyprus Economy

Supervisor: Sami Fethi

Abubakar Mohammed Abubakar

Thesis Title: Impact of IT on Business: e-WOM and the Three Ws (Who, Why and What)

Supervisor: Mustafa Ilkan

Laura Syagga

Thesis Title: Intuitive Cognitive Style and Biases in Decision Making

Supervisor: Cem Tanova

Muhannad Abu Tair

Thesis Title: Effects of Accountants' Job Satisfaction and Affective Commitment on Turnover Intentions

Supervisor: Mustafa Tumer

Turkish Language and Literature

Sevinç Girgin

Thesis Title: Falih Rıfkı Tayin Gezi Yazılarında Avrupa

Supervisor: Ertuğrul Aydın

Emine Onuş

Thesis Title: Ahmed Tevfik Efendi'nin Tesalya Savaşı İle İlgili Yazıları Ve Siirleri

Supervisor: Ömer Faruk Huyugüzel

Nalan Yıldırım

Thesis Title: Türkiye Türkçesinde Ettirgenlik Kategorisi.

Supervisor: Vügar Sultanzade

Nergis Pilaslı

Thesis Title: Haldun Taner'in Ölürse Ten Ölür Canlar Ölesi Değil Adlı Eserini Biçembilim (Değişibilim-Üslupbilim) Açısından İnceleme

Supervisor: Tayyibe Uç

Naziyet Gencay

Thesis Title: Kuzey Kıbrıs Türk Ağzlarında Kalıp Sözler.

Supervisor: Gülseren Tor

Akile Arzuhal Çatal

Thesis Title: Kuzey Kıbrıs Türk Ağzları: Balalan, Mehmetçik, Paşaköy, Hamıtköy, Gazımağusa; Görneç Kalavaç Yeniceköy, Gazıköy Gönyeli; Bostacı

Supervisor: Gülseren Tor

Mehmet Güler

Thesis Title: İlhan Tarus'un Romanlarında Millî Mücadele

Supervisor: Adnan Akgün

■ MBA ■

Business Administration

Narmina Baghirzade

Thesis Title: The Impact of Foreign Direct Investment on Human Development Index in Commonwealth of Independent States

Supervisor: Sule Aker

Sourena Akhgarandouz

Thesis Title: The Role of Agriculture on Brazilian Economic Growth: Evidence from Time Series Analysis, 1980-2010

Supervisor: Sami Fethi

Olga Betyak

Thesis Title: An Econometric Analysis of Determinants of Economic Growth in Crisis Countries of European Union

Supervisor: Serhan Çiftçioğlu

Solmaz Navaee

Thesis Title: An Econometrics Analysis of Macroeconomic Determinants of Investment Function

Supervisor: Serhan Çiftçioğlu

Taraneh Foroutan Yazdian
Thesis Title: Business Faculty Graduate Students' Attitude toward Collective Representation
Supervisor: Tarik Timur

Fardad Motarjemi khodadad
Thesis Title: Entrepreneurial Attitude of the University Students After Graduation: Case of Northern Cyprus
Supervisor: Mustafa Tümer

■ MS ■

Architecture

Maryam Mansouri Tehrani
Thesis Title: The Role of Technology in Providing the Efficiency of Kitchen Design
Supervisor: Özlem Olgaç Türker

Golshid Gilani
Thesis Title: Evaluating Flexibility Notions in Mass Housing of North Cyprus Through Learning from Her Rural Vernacular Architecture
Supervisor: Özlem Olgaç Türker

Abbas Hedayat
Thesis Title: Inquiry on Interrelationships Between Architecture and Fashion Design
Supervisor: Hifsiye Pulhan

Roxaneh Fouladi Nashta
Thesis Title: Sensibility of Stage Design in Related with Different Performance; Opera, Musical, Play Observational, Qualitative Research: Case Study UK-London
Supervisor: Uğur Dağlı

Cemaliye Eken
Thesis Title: Integration of Cultural Sustainability in Rural Tradition Aghirda (Ağırdağ) Houses
Supervisor: Özgür Dinçyürek

Fırat Sözmener
Thesis Title: An Interpretation of Simplicity in the Frame Minimalist Approach on Traditional, Modern and Contemporary Housing
Supervisor: Kağan Günçe

Gültekin Çizgen
Thesis Title: Rethinking the Role of Context and Contextualism in Architecture and Design
Supervisor: Turkan U. Uraz

Aminreza Iranmanesh
Thesis Title: Territorial Aspects of Place Definition: Exploring the Gap within and in-between Territories.
Supervisor: Resmiye Alpar Atun

Elham Arab
Thesis Title: An Evaluation of Interior Space Defining Elements of Re-functioned Historic Warehouses: Lima Road, Famagusta
Supervisor: Uğur Dağlı

Kamand Razmkhah
Thesis Title: Inquiry of Sustaining Socio-cultural Quality in Existing Housing Environment: The Case of Kumsal District, Nicosia, Northern Cyprus
Supervisor: Resmiye Alpar Atun

Canan Pembe Sari
Thesis Title: An Insight to People's Aesthetic Responses to Their Returned Environment
Supervisor: Ceren Boğaç

Sahel Sayari
Thesis Title: Evaluation of Window Display of Retail Shops: A Case Study of İstiklal Street, İstanbul, Turkey
Supervisor: Uğur Dağlı

Banking and Finance

Sabina Bayverdiyeva
Thesis Title: Project Appraisal and Risk Analysis of Biodiesel Expressing and Refinery Plant in Africa
Supervisor: Glenn Jenkins

Hassan Javaid
Thesis Title: Internet Banking vs Conventional Banking in Terms of Profitability Index: Case Study of Saudi Arabia
Supervisor: Nesrin Özataç

Alexious Machimbirike
Thesis Title: A Cost Benefit Analysis of Two Alternative Traffic Lights Systems for the Colorful City of Zamzam
Supervisor: Glenn Jenkins

Esmail Roudgar
Thesis Title: Forecasting Foreign Exchange Market Trends: Is Technical Analysis Perspective Successful?
Supervisor: Mustafa Besim

Rokhsareh Monshizadeh Tehrani
Thesis Title: The Association of Economic Conditions, Tourism Expansion and Corporate Performance of Tourist Companies: The Case of Turkey
Supervisor: Salih Katurcioğlu

Ajewole Babatunde Oladimeji

Thesis Title: Capital Structure: The Case of Nigerian Non-financial Corporations

Supervisor: Mustafa Besim

Ebrahim M. Hazrati

Thesis Title: Feasibility Study of Production of Steel (Billet) and Sponge Iron in Iran

Supervisor: Mustafa Besim

Tural Sharifov

Thesis Title: Direct Ownership Structure and Profitability in Azerbaijan Commercial Banks Listed in Baku Stock Exchange(BSE)

Supervisor: Cahit Adaoğlu

Mamadou Lamarana Guisse

Thesis Title: Financial Performance of the Malaysian Banking Industry: Domestic vs Foreign Banks

Supervisor: Nesrin Özataç

Fagan Afandiyev

Thesis Title: Concentration and Competition in the Azerbaijan Banking Industry

Supervisor: Nesrin Özataç

Gulfam Ashraf

Thesis Title: Adoption of Internet Banking in United Arab Emirates

Supervisor: Nesrin Özataç

Mohammad Ali Kermanian

Thesis Title: An Empirical Analysis of Hedging Instruments for Canadian Importers and Exporters: Option Contracts on USD/CAD (USX) in 2010

Supervisor: Cahit Adaoğlu

Benan Çetin

Thesis Title: Performance and Profitability of the Technology Sector in İstanbul Stock Market

Supervisor: Nesrin Özataç

Hidayet İzber Sakallı

Thesis Title: Corporate Governance and Performance in TRNC Banking Industry

Supervisor: Eralp Bektaş

Özlem Altun

Thesis Title: Factors Affecting the Use of Internet Banking: The Case of Northern Cyprus

Supervisor: Bilge Öney

Mustafa Elçin

Thesis Title: Oil Price Shocks and Stock Markets

Supervisor: Salih Katırcıoğlu

Savalan Ismayilov Ismayil

Thesis Title: The Principles of Islamic Finance its Challenges and Policy Suggestion for Azerbaijan

Supervisor: Eralp Bektaş

Civil Engineering

Yashar Shafaei

Thesis Title: Influence of Hooked-End Steel Fibers on Some Engineering Properties of SIFCON

Supervisor: Özgür Eren

Aria Aghajani Namin

Thesis Title: Structural Evaluation of Tied-Arch and Truss Bridges Subjected to Wind and Traffic Loading

Supervisor: Mürude Çelikağ

Onur Ejder

Thesis Title: Seismic Performance Evaluation of 2-Dimensional Reinforced Concrete, Steel and Mixed Frames.

Supervisor: Mürude Çelikağ

Hind Mahmood Khudhur

Thesis Title: Discussions on the Seismic Performance Assessment Through a Case Study of “Sosyal Konutlar” Buildings in Famagusta

Supervisor: Serhan Şensoy

Hamed Farajzadeh

Thesis Title: Investigation of Space Truss Using the Integrated Force Method

Supervisor: Erdinç Soyer

Haefa Kalid Hamed

Thesis Title: Computerized Life Cycle Cost Analysis

Supervisor: Tahir Çelik

Negar Rahemi

Thesis Title: Numerical Investigation on Lateral Deflection of Single Pile Under Static and Dynamic Loading

Supervisor: Huriye Bilsel

Sepehr Alizadeh Salehi

Thesis Title: Integration of Building Information Modeling and Laser Scanning in Construction Industry

Supervisor: Mürude Çelikağ

Nariman Afzali

Thesis Title: Numerical Investigation of the Behaviour of High Strength Steel Extended End-Plate Connections

Supervisor: Mürude Çelikağ

Sina Meshksar

Thesis Title: Cost and Time Impacts of Reworks in Building a Reinforced Concrete Structure

Supervisor: Tahir Çelik

Danial Lakayan

Thesis Title: Comprehensive Soil Characteristics Study and Finite Element Modeling of Soil Structure Behavior in Tuzla Area

Supervisor: Huriye Bilsel

Yashar Mohamadi

Thesis Title: BIM and Building Performance Modeling Integration in Minimizing the Annual Energy Demand of Typical Cypriot Dwellings

Supervisor: Tahir Çelik

Sepideh Fadaei

Thesis Title: Progressive Collapse Analysis of Steel Framed Structures with I-Beams and Truss Beams Using Linear Static Procedure

Supervisor: Mürüde Çelikağ

Kamran Keikhaei

Thesis Title: Properties of Concretes Produced by Single and Combined Hooked End Discontinuous Discrete Steel Fibers

Supervisor: Özgür Eren

Kani Akhavan Kazemi

Thesis Title: Properties of Concretes Produced with Recycled Concrete Aggregates.

Supervisor: Alireza Rezaei

Meisam Samidoudaran

Thesis Title: Emergency Service Location Study for Kyrenia City in Cyprus

Supervisor: Mehmet M. Kunt

Computer Engineering

Anurika Okoli

Thesis Title: Investigation of the Effect of Mobility Models on proactive and reactive routing protocols in mobile Ad Hoc Networks

Supervisor: Gürcü Öz

Mohammadamin Roshanasan

Thesis Title: Performance Evaluation of Routing Protocols in Wireless Mobiles Ad Hoc Networks (MANETS) Using OPNET Simulator

Supervisor: Gürcü Öz

Huthaifa Luay M.

Thesis Title: Design and Implementation of a Wireless Bulletin Board

Supervisor: Muhammed Salamah

Aliyu Kabir Musa

Thesis Title: The Role of Neurotransmitter receptors in Mental and Behavioral Disorders: A Biomedical Text Mining Approach

Supervisor: EkremVaroğlu

Jalil Shahabi

Thesis Title: A Multi-Set Artificial Immune System for Searching Optima in Dynamic Environments

Supervisor: Ahmet Ünveren

Abdullah S. Mahmud

Thesis Title: Design and Implementation of a Virtual Smart Board

Supervisor: Muhammed Salamah

Maryam Gholami Dobarjeh

Thesis Title: Genetic Optimization for Image Segmentation

Supervisor: Adnan Acan

Alaa Ali Hameed

Thesis Title: Real-Time Noise Cancellation Using Adaptive Algorithms

Supervisor: Hasan Kömürçügil

Firas Zawaideh

Thesis Title: An Energy Efficient Clustering Algorithm for Wireless Sensor Network (EECA)

Supervisor: Muhammed Salamah

Javad Mohammadi Rad

Thesis Title: Improving LSB Algorithm Using Filtering and Matching

Supervisor: Alexander Chefranov

Economics

Chima Christian Okechukwu

Thesis Title: Capacity Utilization in Manufacturing Industries: Evidence from Nigerian Firm Level Data

Supervisor: Cem Payaslıoğlu

Ikechukwu Darlington Nwaka

Thesis Title: Trade liberalization and Economic Growth: A Time Series Approach for Nigeria

Supervisor: Gülçay Tuna Payaslıoğlu

Kufre Dominic Eyo

Thesis Title: Financial Development and Economic Growth: A Case Study of Nigeria

Supervisor: Gülçay Tuna Payaslıoğlu

Electrical and Eletronic Engineering

Aman Ghasemzadeh

Thesis Title: Comparison of Feature Based Fingerspelling Recognition Algorithms

Supervisor: Erhan A. İnce

Fazel Farazandeh

Thesis Title: Hybrid Energy Efficient Routing Protocol for Wireless Sensor Networks

Supervisor: Şener Uysal

Halidu Sule

Thesis Title: Adult Content Filtering Using Text and Image Analysis

Supervisor: Erhan İnce

Kian Jazayeri

Thesis Title: Determination of Power Losses in Solar Panels Using Artificial Neural Network

Supervisor: Şener Uysal

Industrial Engineering

Sam Mosallaeipour

Thesis Title: Robot Move Scheduling in n FMC

Supervisor: Bela Vizvari

Interior Architecture

Cemal Osmanlılar

Thesis Title: Reflectance of Change Within Space and the State of Human Sensation Through Adaptive Re-use of Old Spaces

Supervisor: Abanu Çavuşoğlu

Mathematics

Andrew Adewale Alola

Thesis Title: Analysis of Possibility Theory for Reasoning under Uncertainty

Supervisor: Rashad Aliyev

Cemaliye Kurt

Thesis Title: Euler Characteristic of Groups C.T.C. Wall's Approach

Supervisor: Müge Saadetoğlu

Mechanical Engineering

Orxan Şibliyev

Thesis Title: Modeling of Turbulent Flow Past a Circular Cylinder Using Large Eddy Simulation on Unstructured Grids

Supervisor: İbrahim Sezai

Armita Hamidi

Thesis Title: Energetic and Exergetic Analyses of a Direct Steam Generation Solar Thermal Power Plant in Cyprus

Supervisor: Uğur Atikol

Husam Naufal Saleh Yassien

Thesis Title: Integrated Solar Water Heater

Supervisor: Loay B. Y. Aldabbagh

Poorya Ghafoorpoor Yazdi

Thesis Title: Localization of Wireless Sensor Networks for Industrial Applications

Supervisor: Majid Hashemipour

Hosein Khalatbari

Thesis Title: Investigation of Formability of Material in Incremental Sheet Metal Forming Process

Supervisor: Fuat Egelioglu

Tourism Management

Julia Franchuk

Thesis Title: The Perception of Restaurant Guests for Dinner Experience: A study in kiev, Ukraine

Supervisor: Güven Ardahan

Mona Bouzari

Thesis Title: Preliminary Study on Destination Attributes of Northern Cyprus: Iranian Travellers' Perspective

Supervisor: Rüçhan Kayaman

Elnaz Beirami

Thesis Title: Total Quality Management Commitment to Service Recovery Performance: An Emperical Study of Front-line Hotel Employees in the USA

Supervisor: Salih Katircioğlu

Shahryar Memarbashi

Thesis Title: Assessing Customers' Perception Regarding Service Failure and Recovery Strategies and Consumer Future Behavior in Restaurant Industry: Evidence from Mashaad, Iran

Supervisor: Hasan Kılıç

Homayoun Pasha Safavi

Thesis Title: The Process of Urbanization and Its Implication for Tourism Sector. A Sustainability Approach: The Case of Famagusta, Northern Cyprus

Supervisor: Habib Alipour

Sarvenaz Safavi

Thesis Title: Sustainable Governance of Coastal Zone-Apathy or Commitment: Evidence from Northern Cyprus (TRNC)

Supervisor: Habib Alipour

Rita Anumbose Nkendon

Thesis Title: Examining the Selected Consequences of Customer-related Social Stressors in the Hotel industry

Supervisor: Osman M. Karatepe

Zeynep Sila Özen

Thesis Title: Impact of Educational Tourism on Host Population: A case of Famagusta, Northern Cyprus

Supervisor: İkyay Yorgancı

Neda Gholizadeh Sarvari

Thesis Title: Destination Brand Equity, Satisfaction and Revisit Intension: An Application in TRNC as a Tourism Destination

Supervisor: Rüçhan Kayaman

Gelareh Fazli

Thesis Title: Evaluation of Destination Image Among Foreign Visitors in Tehran

Supervisor: Hasan Kiliç

Arezou Akhavan

Thesis Title: An Analysis of the North Cyprus Image from the Foreign Tourists' Perception

Supervisor: Hasan Kiliç

Urban Design

Siavash Jalaladdini

Thesis Title: Interrogating Vitality in Steets: An Analysis and Survey in Two Cypriot Towns.

Supervisor: Derya Oktay

■ Ph.D. ■

Architecture

Yara Saifi

Thesis Title: On Political Conflict and Architecture: Evaluation of the Architectural Context of Jerusalem's Conflict

Supervisor: Yonca Hurol

Civil Engineering

Obinna Onuaguluchi

Thesis Title: Properties of Cement Based Materials Containing Copper Tailings

Supervisor: Özgür Eren

Communication and Media Studies

Fahme Dabaj

Thesis Title: An Analysis of Student Perceptions on Communication Barriers in Distance Education: A Case Study of Sakarya University Online Programs

Supervisor: Süleyman İrvan

Educational Sciences

Nilgün Suphi

Thesis Title: The Influence of Presage and Study Processes on Academic Success of Undergraduate Turkish Student

Supervisor: Hüseyin Yaratın

Alev Elçi

Thesis Title: Faculty Beliefs and Needs: Opening the Gate to ICT - based Professional Development in Teaching and Learning

Supervisor: Hüseyin Yaratın

Electrical and Electronic Engineering

Nasser Sabah

Thesis Title: Enhancement of Mobile Ad-hoc Network Models By Using Realistic Mobility and Access Control Mechanisms

Supervisor: Aykut Hocanın

Hasan Saed Abu Hilal

Thesis Title: Performance of MIMO CDMA in Impulsive Channels

Supervisor: Aykut Hocanın

Reza Abrishambaf

Thesis Title: A Novel Methodology for Development of Distributed Industrial Wireless Sensor and Actuator Network in Reconfigurable Mechatronic Device

Supervisor: Majid Hashemipour

Kian Jazayeri

Thesis Title: Determination of Power Losses in Solar Panels Using Artificial Neural Network

Supervisor: Şener Uysal

Mathematics

Ersin Kusur Bodur

Thesis Title: Fuzzy Utility Based Decision Analysis in the Credit Scoring Problem

Supervisor: Rashad Aliyev

Fatma Bayramoğlu Rızaner

Thesis Title: Dynamic of a Single Species Under Periodic Habitat Fluctuation and Allee Effect

Supervisor: Svitlana P. Rogovchenko

Mechanical Engineering

Ehsan Kiani

Thesis Title: Design and Development of an Auto-Steering System Control for Off-Road Vehicles

Supervisor: Hasan Hacışevki

Physics

Hale Paşaoğlu

Thesis Title: Information Loss Problem in Linear Dilaton Black Holes

Supervisor: Mustafa Halilsoy

Alireza Lajevardipour

Thesis Title: Thermomechanical Properties of Graphene and the Graphene's Impact on Motion of Light Atoms by Means of Molecular Dynamics

Supervisor: Mustafa Halilsoy

Zahra Amirabi

Thesis Title: Stability of Thin-shell Wormholes

Supervisor: Mustafa Halilsoy

■ Journal Publications (SCI, SSCI, AHCI) ■

The journal publications listed here are those that are listed in Arts & Humanities Citation Index (A&HCI), Science Citation Index (SCI), Science Citation Index Expanded (SCI-Expanded), or Social Sciences Citation Index (SSCI). A search on ISI Web of Science was performed on 02 January 2013 to retrieve articles with at least one author having EMU affiliation. **This list may not be comprehensive as some articles could be deposited to ISI after the query date.**

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