

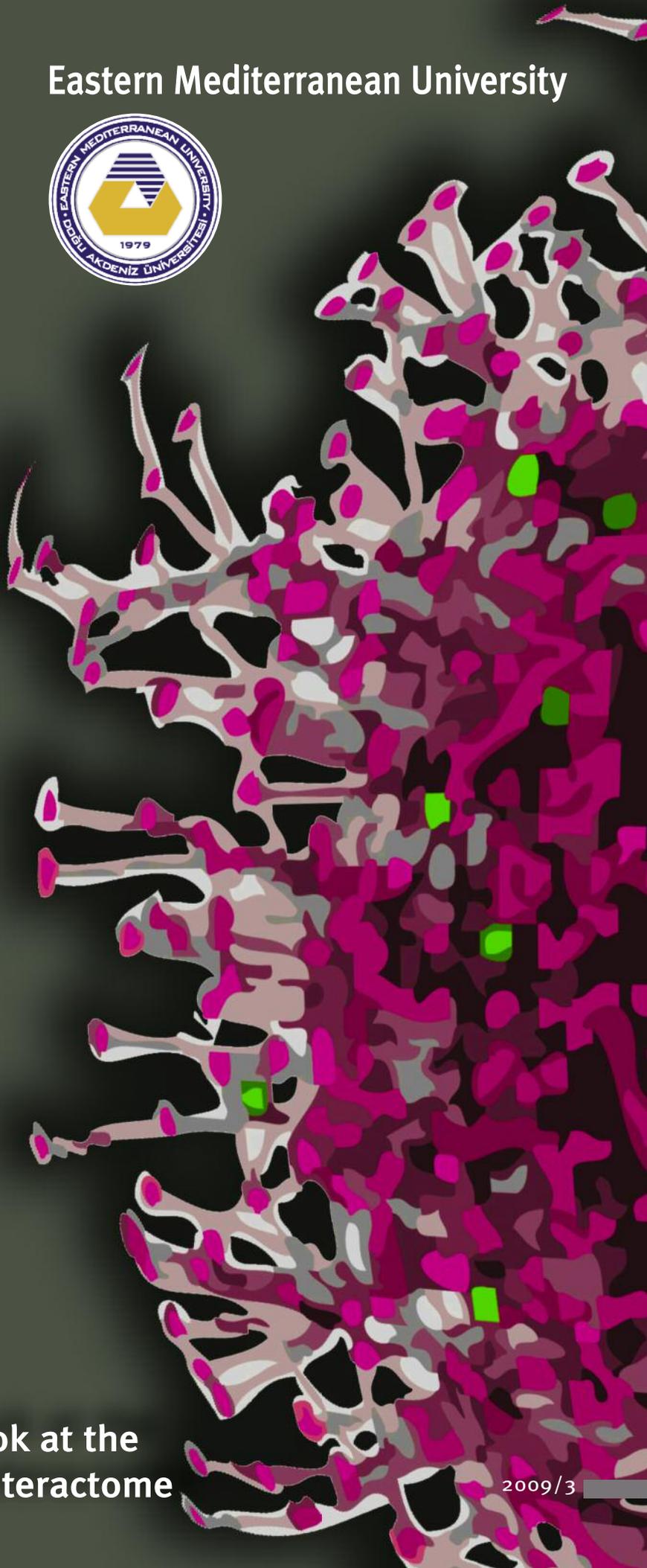
research newsletters

Eastern Mediterranean University



A new look at the
human interactome

2009/3



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Dear Colleagues,

We are happy to present the third issue of the *EMU Research Newsletter* in 2009. In this issue, we have several interesting articles from different fields of study at EMU. Doğu Arifler from the Department of Computer Engineering introduces the methodology he developed to detect hazards utilizing wireless sensor networks. From the Department of English Literature and Humanities, William Spates contributes his article on Shakespeare and the metonymy of disease. Our *Biomedical Science Research* article series continues with Şenay Kafkas, a doctoral candidate at EMU, who discusses her interdisciplinary work in the field of computational biology.

EMU Research Newsletter team gives emphasis to the work of the University's student researchers. We also aim to draw attention to the fact that EMU is truly an international university, with its faculty members and students coming from various parts of the world. Towards these goals, we feature an interview with one of our Nigerian students Phillips Olaleye Agboola, a graduate student in the Department of Mechanical Engineering. Agboola introduces his research on energy conservation and shares his vision on how he will make use of his EMU education, when he returns to his home country. In the *Where are they now?* section, you will have the opportunity to read about some of EMU's international alumni, discussing how education at EMU impacted their research careers. We invite you to share the news of your successful former students in our upcoming issue.

We thank all those who have contributed to this issue.

With best regards,

Bahar Taneri

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Research @ EMU

■ Announcement for A-Type Scientific Research Projects

Office of the Research Advisory Board has announced that applications for the A-Type Scientific Research Projects are being accepted until 9 November 2009. The fund for A-Type Scientific Research Projects is provided by the Eastern Mediterranean University's Scientific Research Budget. This fund is available to all faculty members who plan to initiate a new research project, complete an ongoing project, and contribute to graduate theses, with the aim of creating a university-wide research culture. Each project will be supported up to 15,000 TL, provided that the project duration is no longer than 18 months. Those who would like to apply should provide detailed explanations about the project and its expenditure. All full-time members of Eastern Mediterranean University academic staff may apply for support for Type A projects. A project director may not apply to manage another project in the same field before having completed the ongoing scientific research project. Apart from the application form, applicants should also provide Curriculum Vitae, a CD which contains electronic copies of all documents required for the application, and if applicable a permission document from the Ethics Board. Detailed information about Eastern Mediterranean University's Scientific Research Budget application principles along with the application form can be obtained at: <http://research.emu.edu.tr>.

News submitted by: Research Advisory Board

Arts @ EMU

■ EMU Department of Music in France – Victory of Music over Politics

EMU Department of Music Chair Aslı Giray (pianist) and Senior Instructor Nicolas Deletaille (cellist) were invited to attend the *Academie D'Instruments Anciens 2009* (Academy of Historical Instruments) organized by the Association *Ad Libitum*, in Ollans, France from 7-14 July 2009. *Ad Libitum* is an international organization funded by a private investor, which specializes in the restoration and use of historical musical instruments, especially fortepianos dating from the 18th and 19th centuries. Three young musicians from the EMU Department of Music, cello student Eren Kaysar, alumnus Selen İşmen (piano graduate 2004), and a recent graduate Yağmur Ölmez (2009 graduate, pianist) also attended the



Music student Eren Kaysar with Cellist Gerard Leclerc

summer academy, receiving instructions from a staff of professional musicians, led by French pianist and *Ad Libitum* artistic director Alain Roudier. Kaysar and Ölmez were awarded full scholarships to study at the Academy, and Kaysar was also given a professional cello worth of 22,000 Euros at the end of the course to acknowledge his fast progress on the cello, having studied with Nicolas Deletaille for only two years. During the *Academie*, Kaysar studied with reknown cellist Gerard Leclerc, a former student of the prodigal cellist Jacqueline du Pre. All members of the EMU team performed in daily concerts at the *Chateau d'Ollans* and *Chapelle de Larians* with other members of the *Academie*, while Nicolas Deletaille also gave two other concerts with Alain Roudier and mezzo-soprano Jeanne Delartigue in two other churches in the



Nicolas Deletaille and Alain Roudier

area, playing the arpeggione, a historical six-string cello. Deletaille is one of a very small number of arpeggione players in the world. All concerts were well attended.

The outstanding success of EMU's Department of Music was highlighted by the fact that the EMU logo was included in all posters of the *Academie 2009* as a sponsor and partner, and Aslı Giray was named collaborator of the 2009 Summer Academy. Eastern Mediterranean University was announced and recognized

as being in North Cyprus and the Department of Music was acknowledged as a partner in all concerts. The Association has proposed to donate a valuable historical pianoforte to EMU Department of Music, if the necessary conditions for preservation and accommodation are met.

*News submitted by: Aslı Giray
Department of Music
Faculty of Arts & Sciences.*

■ The Ethnography of a Dig

Aslı Giray of the EMU Department of Music, composed the music for Communication Faculty's Skip Norman's documentary film "The Ethnography of a Dig", featuring the archaeological excavation carried out by EMU Department of Archaeology and Art History at Kaleburnu. Giray composed five pieces for the soundtrack: *Ancient Sounds*, for two voices and arpeggione (an ancient 6-string cello); *Long Ago*, for flute, arpeggione and bendir (A Turkish traditional percussion instrument); *Cyprus Air*, for flute solo, percussion and arpeggione; *Underwater*, for guitar, arpeggione and flute; and the *Main Theme* for flute, guitar and arpeggione. The pieces were performed by Aytunç Akdoğu and Simge Akdoğu (Tenor and Soprano vocals), Department of Music's Senior Instructor Nicolas Deletaille (arpeggione), Alumnus Heran Mirillo (flute), and student Erkan Erzurumlu (guitar and bendir). The recording session was carried out in a private recording studio in Lefkoşa, conducted by Aslı Giray and managed by Kutay Alicik. The compositions reflect musical styles from several centuries and different cultures, focusing on traditional Mediterranean elements, but includes certain traits from ancient Byzantine, Islamic, Turkish and Turkish Cypriot music. The music will be performed by the Department of Music students and staff in a tea-time concert in November in the Chorus Room of the Department. The film was shown in Kaleburnu School on 31st August 2009. Several showings of the film will be organized at EMU in the Faculty of Communication, and also at Sidestreets in Nicosia.

*News submitted by: Aslı Giray
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Hazard Detection Using Wireless Sensor Networks

By Doğu Arifler
Department of Computer Engineering
Faculty of Engineering



Doğu Arifler

A wireless sensor node is a tiny device consisting of sensing, data processing, and communication components. A large-scale, dense deployment of wireless sensors constitutes a wireless sensor network that may be used for monitoring natural phenomena and hazardous events such as fires and pollution, or for combat surveillance. Such deployments have become feasible due to increased availability of small, low-cost, and low-power sensing devices equipped with radio transceivers (see Figure 1). These devices are responsible for collecting information about their surroundings and wirelessly reporting them to a central station for further processing. One can think of a wireless sensor network as a special kind of an ad hoc wireless network except that a sensor network



Figure 1. eKo Node: A fully integrated solar-powered microclimate sensing device from Crossbow Technology (<http://www.xbow.com>)

may contain thousands of resource-constrained nodes compared to a traditional ad hoc network with tens of nodes. An extensive survey of wireless sensor networks is presented in (Akyildiz *et al.*, 2002).

For the past few years, I have been working on applications of spatial random network models (Franceschetti & Meester, 2008), stochastic geometry (Stoyan, 1996), and information theory (Cover & Thomas 2006) to develop methods for analysis of sensor networks. First, it may be informative to say a few words about these technical fields. Spatial random networks arise when nodes are randomly placed, as for example, in sensor networks. Deployment of sensors does not generally follow a pattern due to natural limitations, and simply, the way in which they are deployed; for instance, they may be scattered from an airplane over a large mountainous or thickly forested region that is not easily accessible. The locations of sensor nodes thus form a random point pattern in a plane. Random network models have traditionally been studied by mathematicians and statistical physicists. Nowadays, such models find great practical applications in engineering to answer questions such as “when is a network connected?” and “how much information can a network

carry?”. Stochastic geometry provides a number of methods for studying random collections of objects such as random point patterns and tessellations. Information theory provides a set of tools for answering two fundamental questions: “What is the ultimate data compression?” (entropy) and “what is the ultimate transmission rate of communication?” (channel capacity).

The research I have recently conducted focuses on hazard detection using wireless sensor networks. In order to understand the context better, one has to note that arbitrary failures and malfunctions in wireless sensor networks are quite common since sensors are relatively low-cost and fragile devices. Intermittent degradation in wireless link quality also makes wireless sensor networks inherently unreliable. At the same time, hazardous events such as fires can destroy sensors that are deployed to monitor environmental conditions. Therefore, decision support systems designed for monitoring applications should be able to distinguish between cases in which sensors are *randomly failing* and those in which sensors are being *systematically destroyed* by hazardous events. In particular, considering that a number of close-proximity failures might arise by chance, we are

interested in methodologically determining the number of “unusual” close-proximity sensor failures that is necessary for statistically inferring occurrence of a hazard. Such determination is generally hard, if not impossible, by visual inspection. Since wireless sensors have limited communication range, any methodology should make the decision before network connectivity is compromised by destruction of a cluster of nodes, impeding proper relay of measurement data.

In that respect, I developed a methodology based on statistical analysis of sensor data to assess the degree of organization in a point pattern in order to detect formation of “holes” or “voids.” The degree of organization in the pattern was captured by a single information theoretic metric (Arifler, 2008a). The results showed that as few as approximately 20 close-proximity sensor failures in dense networks could be considered “unusual” enough to infer

with 90% confidence that a hazard was occurring (Figure 2). Further work reported the impact of systematic node destructions on the connectivity of low-power wireless sensor networks. Simulations demonstrated that with typical sensor transceiver power settings and an initially connected random deployment, a large proportion (>98%) of sensors remain connected to the data collection center when a cluster of 20 sensors fail (Arifler, 2008b). This observation is significant since it suggests that the methodology developed is able to detect occurrence of a hazard before network connectivity is compromised.

Currently, I am working on models and methods to quantify the scaling behavior of random networks with increasing number of sensors. This research will help understand abrupt changes in global properties (phase-transitions) of networks under systematic destructions and will guide design

and deployment of wireless sensor networks for domestic and military applications.

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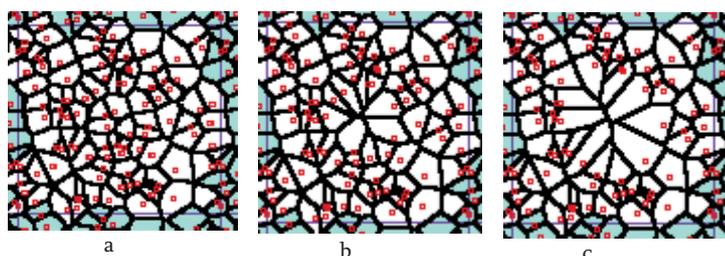


Figure 2. Point patterns that indicate locations of sensors. (a) A completely random arrangement of sensors in a two-dimensional plane. (b) 7 sensors missing in the center, but the pattern is still statistically random. (c) 20 sensors missing in the center, and the pattern is no longer statistically random suggesting occurrence of a hazard.

About the Researcher

Doğu Arifler received his B.S.E.E., M.S., and Ph.D. degrees in electrical and computer engineering from The University of Texas at Austin, USA in 1997, 1999, and 2004, respectively. He worked as a software engineer at National Instruments in Austin, Texas, USA, between 1999 and 2001. Currently, he is an Associate Professor in Department of Computer Engineering at Eastern Mediterranean University, Famagusta, Cyprus. His research interests include network performance analysis and applications of statistical methods to networking. For more information about this research project, please contact our researcher at dogu.arifler@emu.edu.tr.

The Power of Words: Shakespeare and the Metonymy of Disease

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William Spates

During Shakespeare's lifetime, the term metaphor had only been newly introduced into English, circa 1477, while metonymy was still more recent, having appeared in 1543 (Oxford English Dictionary Online). Metaphor and metonymy neatly described the system of analogies which governed early moderns' classically-based worldview with its interlocking harmonies inherent to the *scala naturae*, the Aristotelian scale of nature, the Ptolemaic universe, and Galenic humoral theory. According to David George Hale, the "analogy between society and the human body ... is used more than any of the correspondences which compose the 'Elizabethan world picture'" (Hale, 1971). Jonathan Gill Harris concludes that micro-macrocosm analogies become the dominant conceptual and discursive form of the age, a phenomenon that he calls the body-centered episteme (Harris, 1998). This way of understanding the world established a place, as well as a hierarchy, for everything on the earth and in the heavens. In its natural state when micro- and macrocosmos obeyed this hierarchy, harmony and ease reigned supreme; however, when this order disintegrated, discord and disease prevailed. As a result, at this time and in this context, disease was a far more generalized term than it is in twenty-

first century English.

When the term "disease" first appeared in the English language, it referred to the "Absence of ease; uneasiness, discomfort; inconvenience, annoyance; disquiet, disturbance; trouble" (Oxford English Dictionary). This oldest definition of disease (1330) does not refer to specific bodily ailments but, rather, to imbalances that could take place at a micro- or macrocosmic level. It is not until 1393 that disease comes to exist in its present form as a "condition of being (more or less seriously) out of health; illness, sickness" (Oxford English Dictionary). Still later, circa 1460–1470, the term comes to refer to specific conditions or illnesses: "Any one of the various kinds of such conditions; a species of disorder or ailment, exhibiting special symptoms or affecting a special organ" (Oxford English Dictionary). This incarnation of disease—as a generalized term that could be applied to individual human bodies, bodies politic, the earth, and the heavenly bodies—allowed early moderns to establish direct, analogical relationships that crossed from the microcosm, which is the individual human body, to various macrocosms and *vice versa*.

Early Modern Disease Metonyms

Despite the colorful nature of

twentieth and twenty-first century disease analogies, both the idea of the body politic and the biologically-inspired threats against it, now function as mere rhetoric. This, however, was not the case in the early modern era. Early modern medicine followed the precepts of Claudius Galen of Pergamum, the famous doctor in antiquity after Hippocrates. Galenic medicine was based on Hippocrates's theory of the four humors. The humors—black bile, yellow bile or choler, phlegm, and blood—were considered to affect both health and temperament. If the humors were in balance, one was in good physical and mental health; if they were out of balance, one was out of his or her ease, hence the term, dis-eased. Humors thought to be largely effected by the world around us. This theory survives in linguistic traditions to this day, when we consider such phrases as "to catch a cold." Hearing this term now, we think of germ theory, which is to say of catching a bacterial or viral infection, but in the early modern era, this would have been thought of differently. Instead, early modern physicians would have theorized that cold air affected one's humors, causing an imbalance that was represented by the cold's symptoms. This relationship between the world and the human

body was reinforced by a popular conceptual model that presented the body as a microcosm, or little universe, that was thought to be similar to the microcosm, which is the greater world around us. This concept allowed for a complex set of metonyms, rather than metaphors, that were based on an intrinsic relationship between the microcosm and macrocosm. Subsumed by the umbrella term metaphor but broader than synecdoche, metonymy involves “using one signified to stand for another signified which is *directly related to it or closely associated with it in some way*”(Chandler, 2001). In semiotic terms, metonymy is indexical in nature because it assumes a direct relationship between signs via their signifiers and/or signifieds. Early modern readers and writers viewed disease metonymically as a direct result of their understanding of the body-centered episteme and its inherent interrelations between the microcosm and macrocosm. The resulting system of analogies created a complex network of associations that linked disease, excretion, decay, death, and sin.

For early modern people, disease was very much intrinsic; it was “a state of internal imbalance or *dyskrasia*, caused by humoral disarray or deficiency” rather than the result of an external vector (Harris, 2004). Early modern medical practitioners believed that they could restore health by returning their patients to a state of balance. Likewise, the individuals themselves could, in early modern parlance, defend their own health by practicing *sophrosyne* or moderation, “a mental and physical regimen that was believed to keep the humors balanced” (Grigsby, 2004). By the early modern period *sophrosyne*

elicited yet another connotation, as this classical idea of moderation had been Christianized and immoderation became sin.(Grigsby, 2004). When someone did fall ill, early modern practitioners sought to rectify humoral imbalances through various regimens that included purgatives, dieting, and bleeding in an effort to return their patients to health and ease.

Macrocosmic Disease

If internal imbalances resulted in disease within the microcosmic human body, imbalances in the macrocosm such as planetary conjunctions, eclipses, or the appearance of comets or meteors, would manifest themselves via catastrophes in the natural world or the state as famine, drought, flooding, war, or civil unrest. Macrocosmic imbalances could easily cross over to the microcosm as is often evidenced by disease by copious mythographic evidence. Mythography, the practice of writing myths, was a popular means of describing the origin of disease, and these myths often credited divine displeasure as well as heavenly or meteorological events as the source of the new illness. For example, a widely held early modern myth suggested that the plague and the great pox were caused by astrological conjunctions.¹ In such instances, disease was thought to “have external causes,” which is to say a macrocosmic rather than microcosmic aegis; thus, its “form was understood to be endogenous, rooted in the complexion (or mix) of the body’s internal substances”(Harris, 2004). The macrocosmic cause of disease was often used to explain epidemics, but individuals could also be affected physically and mentally by the heavenly bodies, such as in the case of the mentally ill (i.e. “lunatics”)

who were thought to be effected by the moon.²

Shakespeare was not unused to deploying the body-centered episteme as a conceit describing sickness in the greater world and *vice versa*; in fact, it would be hard to imagine the canon without analogies ranging from the “star-crossed lovers” of *Romeo and Juliet* to *Julius Caesar* when Calpurnia reports the “horrid” astrological and meteorological sights “seen by the watch” that portend both Caesar’s death and the ensuing civil war: “Fierce warriors fight upon the clouds,/ In ranks and squadrons and right form of war,/ Which drizzled blood upon the Capitol” (*Romeo and Juliet*, Prologue, 7; *Julius Caesar*, II.ii.16-24).³ Scholars often note that these meteorological and astrological events foreshadow the human tragedy of the play, but it would be more correct to say that they instigate it. Calpurnia reads the meteor shower and red rain as symptoms of cosmic disorder that will, in turn, wreak havoc on human lives.

Initially, *King Lear* seems to mock the cosmic determinism, in *Julius Caesar* when Edmund makes his cogent case for free will, “we make guilty of our disasters, the/ sun, the moon, and the stars ... and all we are/ evil in by a divine thrusting on” we see a superb example of dramatic irony (*Lear*, I.ii.115-16, 120-21). Shakespeare’s ironic treatment of those who doubt the stars unfolds when Edmund reads to Edgar a prophesy derived from a recent eclipse that includes:

unnaturalness between the child and the parent, death, dearth, dissolutions of ancient amities, divisions in state, menaces and maledictions

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1. See, for example, Gabriele de Mussis’s description of the creation of the plague as a result of a planetary conjunction in Rosemary Horrox, ed., *The Black Death*, (Manchester: Manchester University Press, 1994), 16, or Darrin Hayton’s essay “Joseph Grünpeck’s Astrological Explanation of the French Disease” in Kevin Siena, ed., *Sins of the Flesh: Responding to Sexual Disease in Early Modern Europe* (Toronto: CRRS Publications, 2005), 81-93.
 2. Lunatic in its modern incarnation remains a legitimate signifier for a victim of mental illness. However, in another example of early modern metonymy, lunatic with its derivation from luna was originally in the medieval and early modern periods a signifier for one “affected with the kind of insanity that was supposed to have recurring periods dependent on the changes of the moon” OED, “lunatic.”
 3. All Shakespeare citations follow William Shakespeare: *The Complete Works* (compact edition), ed. Stanley Wells, Gary Taylor, John Jowett, and William Montgomery (Oxford, Oxford University Press, 1988).

against king and nobles, needless diffidences, banishment of friends, dissipation of cohorts, nuptial breaches, and I know not what. (I.ii.135, 139–44)

Of course, the irony is that this prognostication, either manipulated or possibly even forged by Edmund to suit his agenda, is a condensed version of the real events within the fictitious world of the play.

Here, we see that Shakespeare, as so often is the case, calls into question the dominant philosophy of his time. In the person of Edmund, Shakespeare questions cosmic determinism. Do the stars, he asks, determine our fate, our personality, and our physical and mental health? Edmund's conclusion is that they do not. Contemporary readers will no doubt sympathize with Edmund's skeptical mindset, but for Shakespeare, this is a highly ironic moment, and he uses Edmund's false prophesy to foreshadow the events in the play.

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About the Researcher

William Spates obtained his M.A. degree in English from the University of Central Florida, Orlando, FL, USA in 2000, and his D.Phil. from the University of St. Andrews in 2005. Since February 2009, Spates has been working as an assistant professor at the EMU Department of English Literature and Humanities in the Faculty of Arts and Sciences. His current research interests cover the Metaphoricity of Health, Illness and Medicine, Micro-Macrocosm Analogies, the Relationship between the Psyche and the Soma in Early Modern Literature. For more information about this research project, please contact our researcher at william.spates@emu.edu.tr.

Looking at the Human Interactome from an Alternative Splicing Perspective

By Şenay Kafkas
 Department of Computer Engineering
 Faculty of Engineering



Şenay Kafkas

Did you know that a single gene in an organism could lead to the production of multiple proteins and that each of those proteins could have different biological roles? This is realized by a phenomenon called “Alternative Splicing” which is one of the major mechanisms generating protein diversity in an organism. In this cellular process, exons which are the protein coding regions of a gene are joined in different combinations to produce different messenger RNAs (mRNA) from the same premature mRNA sequence. Thus, mRNAs with different exonic structures, enable the same gene to encode various protein isoforms with potentially different structures and functions (Fig.1)

Alternative splicing is widespread within genomes and across different organisms. Recent bioinformatics analyses of sequence data have revealed that 81-94% of human (Taneri *et al.*, 2005; Wang *et al.*, 2008; Koscielny *et al.*, 2009), 74-78% of mouse (Taneri *et al.*, 2005; Koscielny *et al.*, 2009) and 39-61% of rat (Taneri *et al.*, 2005; Koscielny *et al.*, 2009), genes are alternatively spliced. Furthermore, alternative splicing is a tissue specific cellular process which also changes with developmental stages and physiological conditions of the organism. By generating several different proteins from the same gene, alternative splicing significantly expands the transcriptome diversity. This

in return is reflected as proteome diversity, which shapes an organism’s interactomes in different tissues and under different physiological conditions.

Cells, thus organisms function through the systematic interactions of proteins with each other. Hence, Protein-Protein interactions (PPI) and their networks are of great interest to scientists who would like to better understand the cellular processes as well as explore the proteome organization. Currently, both experimental and computational techniques are being used for collecting PPI data and storing them in databases. Several databases encompass a portion of the interactomes. Such databases include the Database of Interacting Proteins (DIP) (Xenarios *et al.*, 2000), Molecular INTeraction Database (MINT) (Zanzoni *et al.*, 2002) and Biomolecular Interaction Network Database (BIND) (Bader *et al.*, 2001). These databases need to be up to date for providing the most recent findings. However, manual curation of such databases becomes an overwhelming task due to the exponential growth of biomedical literature. Hence, use of text mining tools becomes a necessity for PPI extraction. Application areas of text mining tools in the biomedical domain include the identification of named entities such as genes and proteins, as well as relation-

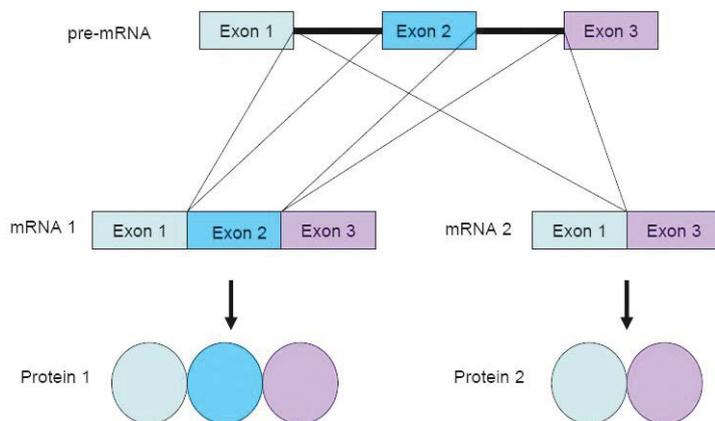


Figure 1. Illustration of an Alternative Splicing example with its potential impact on protein structure

ship extraction such as protein-protein interactions.

My Ph.D. thesis brings together alternative splicing and PPI networks. This project is an inter-disciplinary project involving computer science and molecular biology. My supervisor Ekrem Varoğlu from the Department of Computer Engineering provides guidance on computer science and my co-supervisor Bahar Taneri from Faculty of Arts and Sciences provides guidance on molecular biology. This research is funded jointly by the TRNC Ministry of Education and Culture (MEKB-06-19) and the Eastern Mediterranean University.

In this study, we take a new look at alternative splicing from the perspective of protein-protein interactions. Particularly, our aim is to create the interaction networks of human proteins coded by alternatively spliced genes by utilizing biomedical text mining methods. For this purpose, we analyze HumanSDB3 (Taneri *et al.*, 2005), a database of alternative splicing events in human transcriptome to obtain information about human protein coding genes which are alternatively spliced (Kafkas S. *et al.*, 2007). We develop and apply text mining tools to HumanSDB3 relevant biomedical text, retrieved from NCBI's PubMed (Kafkas *et al.*, 2008; Kafkas *et al.*, 2009a; Kafkas *et al.*, 2009b). More specifically, such tools are being employed to automatically filter abstracts that are likely to contain protein interactions and extract the interacting proteins from the interaction abstracts.

This particular PPIN will help further understand how alternative splicing

increases the complexity of proteomes through potential differential interactions of protein isoforms. Consequently, such networks will enable the further exploration of alternative splicing effects on various cellular functions.

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About the Researcher

Şenay Kafkas has received her BS and MS degrees from EMU Department of Computer Engineering in 2003 and 2005 respectively. Currently she is pursuing her Ph.D. degree in the same department. Her main research area is biomedical text mining. For more information about this research project, please contact our researcher at senay.kafkas@emu.edu.tr.



Phillips Olaleye Agboola, shares his ideas on how he will make use of his EMU education in his home country, Nigeria.

■ **Where are you from? When did you start your studies at EMU? What were your initial thoughts and ideas when you first started studying at EMU?**

I am from Nigeria and I came to EMU in 2006. Before coming I have done a survey to know the standing of the school. I looked into university ranking of the school and I was comfortable to know that at that point in time EMU was ranked 13th when compared with universities in Turkey. I ran a degree check on the instructors and I was surprised to see people with Harvard, Imperial College, Illinois Institute of Technology and Massachusetts Institute of Technology educational backgrounds. I had other acceptances from some prestigious universities in other countries as well; however, I could not go due to high tuition fees and entry visa requirements. Therefore, given the quality of EMU and how North Cyprus welcomes the international students, I chose to attend EMU.

■ **Please tell us a bit about your educational background before EMU.**

I received my first degree Bachelor of Technology (Hons) in Mechanical Engineering from Ladoké Akintola University of Technology, Ogbomosho Nigeria in 2001/2002. I received my Master's degree from the Department of Mechanical Engineering at EMU in June 2008 and now I am enrolled in

the Ph.D. program of the same department.

■ **How did you decide to come to EMU? Where did you hear about EMU?**

I saw an advertisement on one of the newspapers in Nigeria. In addition, the registrar was in Nigeria to recruit students (mainly undergraduates), so I spoke with him and he told me to send my credentials to the department for evaluation. I sent out my application to the Department of Mechanical Engineering and decided to join their Master's program.

■ **Could you introduce your graduate study subject for our readers?**

The global financial crisis (melt down) turns the attention of the world into reconsidering the issue of energy conservation. The fields of sustainable energy and energy conservation are more and more seen as ways to salvage our world of today. Improved use of HVAC systems (Heating, Ventilating, and Air Conditioning) to the use of sustainable energy to replace fossil fuel is on the agenda of so many countries. But how well these can help the energisation in Africa is not deeply investigated. The aim of our study is to investigate the field performance of the so-called sustainable energy/energy conservation in Africa. The problem of Energisation in Africa is an issue that needs to be addressed; the scientific breakthrough in the field of renewable energy is yet to penetrate Africa, as viewed by many, despite her access to the sun energy and land mass that can accommodate the wind energy. My supervisor Fuat Egelioglu and I investigate the field performance of the sustainable energy in Africa, particularly the sub-Saharan region.

■ **Have you had teaching experience at EMU, in addition to your research experience?**

Yes, I have worked as a research assistant in the Department of Civil Engineering in 2007, where I assisted in Static and Engineering drawing courses. Currently, I work as a research assistant in the Department of Mechanical Engineering, where I assist in the material science courses and in the final year projects. What I like most about teaching at the Department of Mechanical Engineering is that there is a cross-cultural learning environment due to students coming from a wide range of countries such as Cyprus, Turkey, Iran and Nigeria.

■ **What kind of projects were you involved in within your department during your M.Sc. program?**

I was privileged to work with Filiz Sarıoğlu, in the field of Engineering Materials. I worked with her on validation of CNT (Circumferential Notch) test method using steel 4140. We validated a new method of testing material strength under stress corrosion cracking environment. Stress corrosion cracking is a field of interest in Australia and Nigeria where pulp (paper) industry is of vital importance to the economy. We manufactured the apparatus in the Department of Mechanical Engineering workshop to suit the test requirements. And our results were compared with the 2001 work of Filiz Sarıoğlu and with the results obtained by the new method initiators R. Rihan, R.K. Singh Raman and R.N. Ibrahim of Monach University, Australia in 2007.

■ **Is there any specific event that you would consider as your most valuable experience at EMU?**

Yes of course, I consider working with the Capstone design team project at the Department of Mechanical Engineering as one of the most valuable experiences I had at EMU. I am sure most of us have seen magazines showcasing ideas and innovations in engineering. The Capstone design team project is something like that. In brainstorming sessions, both the students and the instructors generated various ideas about inventions and innovations. I have gained a lot of insight into the art of engineering as a result of knowledge exchange with the instructors and the students. This opportunity of working with the Capstone team also gave me the privilege to work with Majid Hashemipour and Hasan Hacışevki as they both steer the wheel of the courses (Capstone I and Capstone II).

■ **Could you tell us a bit about how you balance your life as a student and a family man?**

I am married and have a son just over a year old. I will say that as a family man doing research is very demanding, but I believe that I am balancing well. It takes commitment to function as a family man and at the same time as a Ph.D.

candidate, you have to think of how to meet the family needs and at the same time how to meet the academic needs. But all in all, it has been wonderful due to the full support of the Department of Mechanical Engineering staff. They are a wonderful group of people.

■ **What are your short-term plans after you obtain your Ph.D. degree?**

I plan to return to my home country, Nigeria, to look for a job. My reason is that the Nigeria economy is so big that a small difference will be significant; the population of Nigeria is about 250 times bigger than North Cyprus which means any innovation can make a big difference. I strongly believe that I have what it takes to positively reinforce any sector I find myself in. I am presently planning returning to the education sector in Nigeria to serve my country in that respect.

■ **Where do you see yourself in 10 years from now?**

Well in the next 10 years I want to have a patent for an invention in my country's name, I want to join the league of extraordinary Nigerians pulling weight worldwide; in short I want to register my name in the hall of fame of great innovation and invention.

■ **Do you have any messages for our prospective graduate students?**

You can develop yourself with the resources you have access to at EMU. Mingle here with great minds and I bet it you will be great.



WHY DON'T YOU...

...share this interview with your undergraduate students? Please direct them to <http://research.emu.edu.tr>.



ELONA RUSI

I feel lucky to have been a part of the M.A program in International Relations at EMU where I graduated from in 2007. I have been studying all my life, but only at EMU I really started to learn. At EMU I learned to produce ideas and then put them on paper. I

appreciate the distinguished academic staff of the Department of International Relations for making me able to look from different angles to the events that are going on around us. In order to build up my knowledge over the bases taken on the M.A program at EMU, I have been continuing the Ph.D. program on International Relations at Dokuz Eylül University, Turkey. My research up to now was related to different aspects of International Human Migration like migration policies, migrant rights, human trafficking and alike, while my recent interest is on security and migration in the Balkans.



NASRIN BAKU

I graduated with a BA degree from Azerbaijan after which I went on to receive my M.A in International Relations at EMU in 2009 on "The Analysis of the Nagorno-Karabakh Peace Process" under the supervision of

Moncef Khaddar. At EMU I received the post of General Secretary of AzerSS (Azerbaijan Student Society at EMU). My responsibility was to create successful team-work groups, to manage and control related programs, to administer financial resources of AzerSS, to write reports to the International Center, to organize national, cultural and other relevant days, to manage relationships among other national students. This position helped me in my diplomatic profession as well. The great professors of the Department of International Relations guided me in conducting my research. The professors come from different countries sharing their knowledge and their experiences with students. They believe in their M.A students. Conferences, special tours around North Cyprus organized by the department make the instructor-student relation-

ships stronger. After I received my M.A from the IR department I applied to several universities around the world. Now I am studying at the Birmingham University, Faculty of East Europe and Russian policy. My research interests are in the areas of: Ethno-political conflicts, micro-nationalism, foreign policy analyzes and conflict resolution perspectives, security of region, oil politics, energy security, and international cooperation.



NONSO KANAYO EZENWA

I finished the Master's program of Information Systems in the Department of Mathematics at EMU. I completed my studies in the spring semester of the 2008/2009 academic year. My convocation was on the 7th of July 2009. I am now attending a

Ph.D. program in Management (specializing in the Information Systems/Operations Management track) at the Faculty of Business Administration at Memorial University in St John's, Newfoundland, Canada. I am presently doing some research in conceptual modeling in Information Systems as well as in database integration. One of my instructors, Mehmet Ali Tut at the EMU Department of Mathematics helped steer my research focus towards the more technical areas of IS by making me very knowledgeable in computer programming, which helps me think broadly and in-depth, as well as helping me appreciate the basics of IS. He was quite instrumental in the academic direction I took.

WHY DON'T YOU...

...recommend a former student of yours for the next issue?



Recent Publications and Presentations (July - September 2009)

■ 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 Expanded (SCI-Expanded), or Social Sciences Citation Index (SSCI). A search on ISI Web of Science was performed on 30 October 2009 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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■ Conference Papers ■

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Demirel H, Anbarjafari G and Izadpanahi S. "Improved Motion-Based Localized Super Resolution Technique Using Discrete Wavelet Transform for Low Resolution Video Enhancement." in *Proceedings of the 17th European Signal Processing Conference (EUSIPCO-2009)*, pp. 1097-1101, Glasgow, Scotland, 24-28 August 2009.

Erbilek M and Toygar O, "Performance Analysis of Partitioning-based and Subpattern-based Approaches on Iris Recognition." in *Proceedings of the 9th International Conference on Visualization, Imaging and Image Processing (VIIP 2009)*, Cambridge, UK, 13 - 15 July 2009.

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Taneri B, Novoradovsky A, Gaasterland T. "Identification of Shadow Exons: Mining for Alternative Exons in Human, Mouse and Rat Comparative Databases." in *Proceedings of the 1st International Workshop on Biological Knowledge Discovery and Data Mining. (BIOKDD 2009 Workshop of DEXA 2009)*, Linz, Austria, 31 August - 4 September 2009.

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■ Conference Presentations ■

Cavus HA, Mertan B, Miller L and Taneri B. "What do we think about personal genomes? A survey of attitudes towards ELSI of personal genomes." *Personal Genomes Meeting*, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, USA, 14 - 17 September 2009.

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Taneri B and Gaasterland T. "Genomethics." *Personal Genomes Meeting*, Cold Spring Harbor Laboratory, Cold Spring Harbor, New York, USA, 14 - 17 September 2009.

■ Book Chapters ■

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Conference Name: 7th International Congress on Cyprus Studies.
Date: 4-6 November 2009
Web Address: <http://www.cyprusstudies.org/index.html>

Conference Name: 10th International Conference on Clean Energy.
Date: 15-17 September 2010
Web Address: <http://www.icce2010.org/index.html>

Conference Name: International conference on Europe and North Cyprus relations: perspectives in political, economic and strategic issues
Date: 12-13 November 2009
Web Address: <http://www.emu.edu.tr/ICENC/>

Changing Week @ EMU
April 2010
Hosted by EMU Music Department

Conference Name: 3rd International ELT Conference.
Date: 5-7 May 2010
Web Address: <http://www.elt-emu.org/>

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