



# Hakan Ezgi KIZILÖZ

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## WORK EXPERIENCE

DECEMBER 2016 – CURRENT

UTAA, Ankara

### Assistant Professor

I taught Operating Systems, Computer Networks, Cyber Security, Programming Languages and Introduction to Programming courses. I also supervised three MSc students and three BSc graduation projects.

SEPTEMBER 2018 – SEPTEMBER 2019

KMi, The Open University, Milton Keynes

### Visiting Researcher

I worked with the SKM group on scholarly data mining.

SPRING 2019

University in Notre Dame in England, London

### Adjunct Assistant Professor

I taught the Operating System Principles course.

FEBRUARY 2015 – OCTOBER 2016

TED University, Ankara

### Research Assistant

I assisted Computer Networks, Fundamentals of Programming, and Introduction to Information Technologies courses, by preparing lab materials and conducting lab courses.

SEPTEMBER 2008 – APRIL 2015

TOBB ETU, Ankara

### Teaching Assistant

During my MSc and PhD studies, I worked for a total of 19 terms as a teaching assistant. Throughout this time, I assisted many courses including Operating Systems, Computer Networks, Internet and Computer Security, Wireless Networks, Structured Programming and Computer Programming. Moreover, I taught two service courses about Java programming.

## EDUCATION

**PhD** 2011 – 2016  
COMPUTER ENGINEERING, TOBB ETU  
4.00/4.00, Full scholarship

**MSc** 2008 – 2010  
COMPUTER ENGINEERING, TOBB ETU  
3.69/4.00, Full scholarship

**BSc** 2004 – 2008  
MATHEMATICS, TOBB ETU  
2.95/4.00, Full scholarship

## FUNDED PROJECTS

NOVEMBER 2013 – JUNE 2015

EU co-founded project

### Secure idenTity acrOss boRders linKed (STORK) 2.0

STORK will be a step forward towards the creation of a fully operational framework and infrastructure for electronic identities and authentication in the EU. In this project, we first deployed a given demo code on Tomcat. Demo code was written in Struts. We then prepared a database involving 250 students, in consistent with the project specifications, and altered data source from regular txt file to this database. We worked as a sub-contractor for TUBITAK.

NOVEMBER 2011 – NOVEMBER 2012

TUBITAK 1002 project (PhD Thesis Subject)

### Accessible and Usable Human Interaction Proof: Can Cheap Labor Be a Solution?

SMARTCHA is a pure-text HIP test system in which HIP tests are generated using human computation. Throughout this project, we used Amazon's Mechanical Turk Service for obtaining cheap labor, Bing Search API, Wolfram Alpha Service API, Java, JSP for dynamic web pages, MySQL as database management system and Tomcat for deploying the project. After generating HIP tests, we made several usability studies, including one made on blind users. We ran statistical data analysis tools for testing the results.

## COMPUTER LITERACY

THEORETICAL	Wireless Networks, Usable Security, Machine Learning
PRACTICAL	Java, Python, MySQL, JSP, Android, MATLAB, GAMS, Javascript, $\LaTeX$
FAMILIAR	C, C#, Web Services, Linux, Shell scripting, Raspberry Pi, SPSS, Docker, VirtualBox

## EXTRAS

- Fluent in English.
- Motivated, fast learner, practical.
- References will be provided upon request.

## PUBLICATIONS

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### Journal Papers

#### **On initial population generation in feature subset selection**

Ayça Deniz and Hakan Ezgi Kiziloz

Expert Systems with Applications, Vol.137, 15 December 2019, pp.11-21.

#### **Cooperative Parallel Grouping Genetic Algorithm for the One-Dimensional Bin Packing Problem**

Tayfun Kucukyilmaz and Hakan Ezgi Kiziloz

Computers & Industrial Engineering, Vol.125, November 2018, pp.157-170.

#### **Novel multiobjective TLBO algorithms for the feature subset selection problem**

Hakan Ezgi Kiziloz, Ayça Deniz, Tansel Dokeroglu and Ahmet Cosar

Neurocomputing, Vol.306, September 2018, pp.94-107.

#### **Robust and cooperative parallel tabu search algorithm for the maximum vertex weight clique problem**

Hakan Ezgi Kiziloz and Tansel Dokeroglu

Computers & Industrial Engineering, Vol.118, April 2018, pp.54-66.

#### **Robust multiobjective evolutionary feature subset selection algorithm for binary classification using machine learning techniques**

Ayça Deniz, Hakan Ezgi Kiziloz, Tansel Dokeroglu and Ahmet Cosar

Neurocomputing, Vol.241, 07 June 2017, pp.128-146.

#### **A Closer Look at Pure-Text Human-Interaction Proofs**

Hakan Ezgi Kiziloz and Kemal Bicakci

IEEE Transactions on Human-Machine Systems, Vol.47 (6), December 2017, pp.994-1004.

#### **Leveraging Human Computation for Pure-Text Human Interaction Proofs**

Kemal Bicakci and Hakan Ezgi Kiziloz

International Journal of Human-Computer Studies, Vol.92-93, August-September 2016, pp.44-54.

### Refereed Conference and Workshop Papers

#### **How Safe is Safety Number? A User Study on SIGNAL's Fingerprint and Safety Number Methods for Public Key Verification**

K. Bicakci, E. Altuncu, M.S. Sahkulubey, H.E. Kiziloz, Y. Uzunay

21st International Conference on Information Security (ISC 2018), 9 - 12 September 2018, London, UK.

#### **Effects of Various Preprocessing Techniques to Turkish Text Categorization Using N-Gram Features**

Ayça Deniz and Hakan Ezgi Kiziloz

2nd International Conference on Computer Science and Engineering (UBMK'17), 5 - 7 October 2017, Antalya, Turkey.

#### **Towards Making Accessible Human-Interaction Proofs More Secure and Usable**

Hakan Ezgi Kiziloz and Kemal Bicakci

20th IEEE Symposium on Computers and Communication (ISCC2015), 6 - 9 July 2015, Larnaca, Cyprus.

#### **Johnny in Internet Café: User Study and Exploration of Password Autocomplete in Web Browsers**

K. Bicakci, N.B. Atalay, H.E. Kiziloz

7th ACM Workshop on Digital Identity Management (DIM 2011) in conjunction with ACM CCS 2011, October 21, Chicago, IL, USA.

## Refereed Conference and Workshop Papers in Turkish

### **Kablosuz Algılayıcı Ağlarda Yaşam Süresi Eniyilemesi ve Yerel Yönlendirme Ödünleşmesi (Network lifetime maximization and localized routing tradeoff in Wireless Sensor Networks)**

E. Uzun, A. Aksac, O. Ozturk, H.E. Kiziloz, D. Incebacak, B. Tavli, K. Bicakci

Sinyal İşleme ve İletişim Uygulamaları Kurultayı (SIU) 2013, IEEE, 24 - 26 April 2013, Girne, KKTC.

### **SmarTCHA: İnsan Hesaplama Kullanarak Oluşturulan Erişilebilir ve Kullanışlı İnsan Etkileşim İspat Sistemi (SmarTCHA: An Accessible and Usable Human Interaction Proof System Built Using Human Computation)**

Hakan Ezgi Kızılöz ve Kemal Bıçakcı

Elektrik-Elektronik ve Bilgisayar Mühendisliği Sempozyumu (ELECO) 2012, 29 Nov - 1 Dec 2012, Bursa.

### **Korelasyona Sahip Bir Kablosuz Algılayıcı Ağın Yaşam Süresinin İncelenmesi (Investigation of the Interplay between Data Correlation and Lifetime in WSN through Linear Programming)**

Hakan Ezgi Kızılöz ve Bülent Tavlı

III. Haberleşme Teknolojileri ve Uygulamaları Sempozyumu (HABTEKUS'09), p:197-201, Yıldız Teknik Üniversitesi, Beşiktaş - İSTANBUL, 9 - 11 December 2009.

## PHD. THESIS

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### **Leveraging human computation for pure-text Human Interaction Proofs**

Prof. Dr. Kemal Bıçakcı - September 2016

Human-Interaction Proofs (HIPs) are used to mitigate automated attacks. They are assumed to be easily passed by humans but not by computers or automated programs. Security and usability have always been a critical problem for HIPs, especially when “accessibility” is a system requirement. Audio HIPs usually cannot reliably distinguish attacks from legitimate use; they are either easy, and can be automatically solved, or hard even for humans. Even though purely text-based HIPs have desirable usability and accessibility attributes; they could not overcome the security problems yet. Given the fact that fully automated techniques to generate pure-text HIPs securely do not exist, leveraging human computation for this purpose is proposed in the thesis study. In the study, the usability of a currently used pure-text HIP service, textCAPTCHA, is compared against Google’s reCAPTCHA. After analyzing the results, a system called SMARTCHA is designed and implemented. SMARTCHA involves a security engine to perform automated proactive checks on the security of human-generated HIPs and also a module for combining human computation with automation to increase the number of HIP questions. HIP operators were employed in three human computation studies, in which they generated around 22,000 questions in total for SMARTCHA system. The methodology, efficiency and results of these human computation studies are analyzed in detail. The usability of SMARTCHA system is evaluated with a large user study of 372 participants. Users found solving pure-text HIPs of SMARTCHA system significantly more enjoyable than solving reCAPTCHA visual HIPs. The effects of question pre-filtering and use of automation techniques are also evaluated in the study. Results suggest that question pre-filtering reduces solving time of SMARTCHA, whereas applying automation techniques increase it. Another user study among 31 visually impaired users helped evaluation of accessibility. The study results show that SMARTCHA takes less time and is more enjoyable to solve than the new reCAPTCHA audio HIPs. Both studies suggest that pure-text HIPs could be a promising solution for secure, usable and accessible HIPs.

## MSc. THESIS

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### **Investigation of the interplay between data correlation and lifetime in wireless sensor networks through linear programming**

Assoc. Prof. Bülent Tavlı - July 2010

Wireless sensor networks have been increasingly used in applications due to being low-cost. Moreover, they can operate well under different conditions without having a prebuilt infrastructure. Lifetime of the network mainly rely on power consumption of the sensor nodes. Although being account to many other factors, data transfer through the network consumes most of the energy of a sensor node. In order to prevent power depletion of some specific nodes, all nodes should transfer similar amount of data throughout network lifetime. This is an optimization problem which is generally solved by using linear programming. Hence, we used a high-level modeling system (GAMS), for lifetime optimization of wireless sensor networks. In our model, we investigate the change of lifetime as correlation of data produced from sensors differentiates. Simulation results show that, network lifetime increase as correlation of produced data increases.

## COURSES TAUGHT

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CYBER SECURITY	'16 Fall
OPERATING SYSTEMS	'19 Spring, '17 Fall, '16 Fall
COMPUTER NETWORKS	'18 Spring, '17 Spring, '16 Fall
PROGRAMMING LANGUAGES	'17 Fall
INTRODUCTION TO PROGRAMMING	'19 Fall, '18 Summer, '18 Spring, '17 Fall, '17 Summer, '14 Spring, '14 Fall