



BARAN KAYNAK

Ph.D.



Iowa, Iowa City

+1 319 383 24 94



baran-kaynak@uiowa.edu



kaynak.sakarya.edu.tr

@barankaynak

EXPERIENCE

- 2023 – Present **Postdoc Researcher** **University of Iowa**
University of Iowa Hydroinformatics Lab
Link: <https://hydroinformatics.uiowa.edu>
Reference: Ibrahim Demir, Associate Professor (ibrahim-demir@uiowa.edu)
- 2022 – Present **Faculty Member, Ph.D.** **Sakarya University**
Department of Information Systems Engineering
Faculty of Computer and Information Sciences
Courses:
System Administration / Web Programming / Web Technologies / Information Systems Infrastructure and Technologies / Operating Systems / Cloud Computing / Blockchain Technologies and Applications
- 2012 – 2022 **System Administrator** **Sakarya University**
Development of University Information Systems – C# / dotnet core
Server Infrastructure Management - Around 100 servers - Virtualization / VMWare / Proxmox
Installation and administration of Kubernetes clusters – Kubernetes / Rancher
Administration of linux and windows servers
Development of Linux-based IoT devices – Embedded Systems / IoT
Development of RFID access systems – RFID / Payment
Google Mail Integration and Administration – Email / Google Cloud
Cloud-based, distance education system design, development and management – UZEP Project
Kubernetes / Linux Administration / Web Development
Reference: Ahmet Ozmen, Professor (ozmen@sakarya.edu.tr)
- 2013 – 2022 **Lecturer** **Sakarya University**
Department of Information Systems Engineering
Faculty of Computer and Information Sciences
Courses:
System Administration / Web Programming / Web Technologies / Operating Systems
- 2011/07 – 2011/09 **Summer Trainee** **Hyundai Glovis Turkey**
part time
Industrial Engineering Training
Manufacturing
- 2008 – 2011 **System Administrator** **Sakarya University**
part time
Learning Management System
System Administrator / Web Developer
- 2005 – 2010 **IT Responsible** **Bariş Görsel Tanıtım Ltd.**
part time
Photography company
System Administrator / VOIP / Developer

SOFTWARE PROJECTS AND SYSTEM ADMINISTRATION

- 2018-2022 **On-premise Cloud Environment** **Kubernetes, Rancher, F5, Cloudian, GlusterFS, Docker**
Prepared on-premise cloud technology infrastructures required within the university. Kubernetes (Rancher), load balancer (F5), object storage (Cloudian), and block storage (GlusterFS) solutions were installed and tested on university servers. I personally managed the administration and maintenance of these systems for an extended period. Collaborated with team members to quickly implement necessary updates for the compatibility of existing applications with these systems.

2010-2022	University Student Information Automation System (SABIS) Web-based university student information management system. All student processes are managed through this automation system. The system is designed to be scalable in containers. It can handle high traffic during peak times, such as course registration, serving up to 30,000 concurrent unique students.	ASP.NET Core, Docker
2011-2022	Hierarchical Unit Data Service A service providing hierarchical unit data as a central service to other applications. Performs all hierarchical operations in a distributed manner with high speed and low memory usage through GRPC. Designed to minimize database IO using caching. Additionally, there is a web interface for editing all hierarchical department data. A .NET library has been prepared to use this service in other applications.	ASP.NET Core, gRPC, Redis
2011-2022	Single Sign On A single sign-on project using Identity Server, serving authentication to all other applications.	ASP.NET Core, Redis, IdentityServer, OAuth
2020-2022	SABIS Online Examination A scalable online examination web application. Successfully conducted over 3 million exam sessions. Provides quick and flexible exam preparation for instructors through advanced question preparation screens. Detailed reports can be obtained. Integration is possible with other systems through the provided APIs. Can work with both PostgreSQL and MSSQL databases using Entity Framework. Served over 10 universities in the UZEP project.	ASP.NET Core, Redis
2011-2022	Central Authorization Management System A web application and library for central authorization management, allowing all web projects to manage authorization processes under a single platform. All role management processes are centrally controlled. It can be integrated with roles in the organization's human resources systems. Roles can be matched with roles in web applications or authorized in projects or multiple projects with custom-defined roles. All these processes can be done through the web application. The library can be quickly added as an authorization middleware to an ASP.NET Core application.	ASP.NET Core, Redis
2021-2022	Payment Proxy Provides a common payment infrastructure for projects that require payment infrastructure. Users can make their payments from a common address. Projects only need to provide payment amounts and additional information using the functions in the provided client library. The POS agreement information made by the projects with the banks is stored in the database, and payment transactions are carried out according to the payment transactions of the relevant bank. Projects are sufficient to provide payment amounts and additional information using the functions in the client library.	ASP.NET Core
2017-2022	University Card Automation System A comprehensive system prepared for card automation within the university. Solutions have been developed for cafeteria turnstiles, staff time tracking systems, and access control systems. All systems can be managed centrally through a web interface. Hardware solutions for turnstiles, a client application that can work offline on the client side, and integrations made for staff time tracking are specially prepared solutions. Components working on Linux, Windows, and microcontrollers are available. Solutions that can work in event-based operating systems on both the client and server sides have been designed. Applications on both the client and server sides run in containers.	RFID, Microcontroller, ASP.NET, Dotnet Core, Docker

PUBLICATION

2023	UZEP: A Cloud-Based Distance Education Platform for Higher Education Institutions Learning Turkish Online Journal of Distance Education DOI: 10.17718/tojde.1188032 Baran Kaynak – Osman Tuna – Ugur Ozbek – Ali Aksoy – Ahmet Ozmen – Mehmet Baris Horzum – Burak Gol Distance Education / Internet Based Online Learning / Online Assessment / Educational Technology, / Covid-19	
2023	Open Data and Big Data Applications For Higher Education and Possible Outcomes Journal of Science and Technology DOI: 10.22531/muglajsci.1201726 Sümeyye Kaynak – Baran Kaynak – Ahmet Özmen Open Data / Big Data / Higher Education	Mugla

2020	GPU-Based Dynamic Solar Potential Estimation Tool Using 3D Plans DOI: 10.1109/ACCESS.2020.2978590 Sümeyye Kaynak – Baran Kaynak – Ahmet Özmen Solar potential analysis / GPU / 3D City Model	IEEE Access
2019	Cloud manufacturing architecture based on public blockchain technology DOI: 10.1109/ACCESS.2019.2962232 Baran Kaynak – Sümeyye Kaynak – Özer Uygun Blockchain / Cloud Manufacturing / Decentralized Manufacturing	IEEE Access
2018	A software tool development study for solar energy potential analysis DOI: 10.1016/j.enbuild.2017.12.033 Sümeyye Kaynak – Baran Kaynak – Ahmet Özmen 3D City Model / Shading Condition / Solar Potential Analysis	Energy and Buildings

EDUCATION

2013-2021	PhD Industrial Engineering Thesis: Blockchain based cloud manufacturing model GPA: 3.83 Graduation Date: 2021/01/15 Diploma Number: 7004/50.73 Supervisor: Özer Uygun - ouygun@sakarya.edu.tr	Sakarya University
2011-2013	Master's Degree Industrial Engineering Thesis: Integrated service-oriented information structure for use of wireless sensor network in manufacturing logistics GPA: 3.28 Graduation Date: 2013/01/07 Diploma Number: 3192/50.140 Supervisor: Orhan Torkul - torkul@sakarya.edu.tr	Sakarya University
2009 – 2010	Erasmus - Bachelor's Degree	Umeå University
2007 – 2011	Bachelor's Degree Industrial Engineering / Faculty of Engineering GPA: 3.08 Graduation Date: 2011/09/16 Diploma Number: 11041/01.1644	Sakarya University

RESEARCH PROJECTS

2022-2023	Environmentally Controlled Vertical Farming in Ornamental Plant Production and a Decision Support System Application: The Case of Hybrid African Violet News in the press: Plant Journal Link	Ministry of Agriculture of Turkey
2020-2021	Higher Education Distance Education Platform (UZEP) Project web page: https://uzep.org Project no: 120K200 UZEP is a distance education platform developed by Tübitak-1001 project that will be utilized by all higher education institutions across the country. While the hardware infrastructure of the system was provided by ULAKBİM, the software components were developed by Sakarya University. Since the developed system does not require the IT resources of universities, it can be put into service in a very short time for any higher education institution. News in the press: Webtekno Link	TÜBİTAK 1001

LANGUAGES

Turkish - Native
English - Advanced

AREAS OF INTEREST

Cloud Computing
Blockchain Technologies
IoT
Enterprise Server Systems
Virtualization
Home Automation
Electronics
3D Printing