# ADNAN OZSOY

http://web.cs.hacettepe.edu.tr/~aozsoy/ , adnanozsoy@gmail.com, Cell: +90-534 870 1128

## CURRENT POSITION ——————————————————————————————————

**Hacettepe  University, Computer Engineering Department,  Turkey**
- Associate  Professor – Tenured                                **Fall  2015 - Current**
    Tenure Track  position  with  teaching  and  research  responsibilities
- Vice Chair of Computer Engineering Department                 **Fall  2018 – Current**

**NETGSM,  Turkey**                                             **2017-Current**
- Consultant - R&D  projects including  Big  Data  design  problems, Data processing, Cloud solutions, Virtualization through Container technology, Microservice Architecture, Scalability Issues

**Komplika, EnerPower, MoraLabs, Turkey**                       **Fall 2022-Current**
- Consultant - R&D  projects in  Blockchain Domain

## EDUCATION ——————————————————————————————————————

**Ph.D. Computer Science**                                      May 2014
  **Indiana University Bloomington**                            Bloomington, INDIANA
    **Thesis Title:** Bit-vector Strategies for String Matching Algorithms on GPGPUs
    **Advisors:** Dr. Martin Swany & Dr. Arun Chauhan

**M.Sc. Computer Science**                                      May 2007
  **The University of Texas at Austin**                         Austin, TEXAS

**B.Sc. Computer Science**                                      May 2005
  **Virginia Polytechnic Institute and State University**       Blacksburg, VIRGINIA
    ❖ Cum Laude, Minor in Mathematics

## RESEARCH EXPERIENCE ————————————————————————————————

**Funded  Prestigious Projects:**
- **Title**: "Effective and efficient parallelization of string matching algorithms using GPGPU accelarators, machine learning, and big data frameworks", Funded  by TUBITAK, 117E142, Duration: 30  months, 09.2017-06.2020

- **Title**: "Lattice-Based  Cryptographic  Protocol  Design  and  Efficient Implementations", Funded  by TUBITAK, 117E636, Duration: 24  months, 2017-2019

- **Title**: " Design and Analysis of NTRU-based  Cryptosystems  Using  Formal Methods", 2555 – TUBITAK – Shota Rustavelli  Georgian  National  Science Foundation (SRGNSF) Joint Research Program, 118E312, Duration: 24  months, 2019-2021

**Current  Research  Areas:**

**Main  areas**: Blockchain and Cryptocurrencies, Distributed Systems, Parallel  Computing, HPC, GPGPU, Big Data Problems
- Blockchain  Applications  in Health, Land  Registry,  GDPR,  Digital  ID,
- Consensus  Algorithms  on  Distributed  networks
- Scalable  Web – Microservices  and  Containerization
- Mobile  embedded  GPGPU  Parallel  Processing  Systems
- High rate  message  handling  in Distributed  and  Big  Data  frameworks
- Evaluating  the  Effects  of  Voltage  Scaling  on  GPGPUs
- Line  Rate  Data  Compression
- GPU  Accelerated  Real-Time  Spectrogram  and  Signal  Detection  Processes  in  SDR
- Longest  Common  Subsequence  (LCS)  and  Sequence  Alignment

**ADVISED THESIS** ——————————————————————————————————————————

**Ph.D.**
- Ahmet Buğday (Graduated June 2020): Scaling Blockchain Using Adaptive Learning Based Reputation
- Alparslan Fişne (Graduated March 2022) : Efficient Parallel Programming For Nonlinear Signal Processing On Embedded Mobile Platforms
- Ozan Zorlu: Blockchain-Based Secure Management Framework For Unmanned Vehicles, Internet Of Things And Aviation
- Ateş Ateş: Blockchain Based Lateral Transshipment Model
- Ömer Faruk Çangır: Applying Deduplication On Blockchain Based Distributed Storage
- Seval Çapraz: A Blockchain Based Framework Model For Fight Against Pandemics
- Şeyma Cihan: Managing Clinical Research Using Fair Digital Objects On Blockhain

**M.S.:**
- Bahadır Adak: "Secure Communication over Distributed Systems using Blockchain"
- Aleaddin Özer : Lattice-Based Secure Cryptographic Protocol Design And Efficient App.
- Sanberk Daver (Graduated January 2021): Next Generation Acas X Simulation
- Yusuf Aksoy: Voltage Scaling On GPU And Applications On Blockchain Mining
- Merve Nur Tiftik (Co-Advisor): Improvement Of Process Discovery By Using Process Mining Algorithms Of Different Perspectives
- Musa Erhan (Co-Advisor – Graduated January 2020): Blockzincir Based Software Project Information Sharing And Estimation System
- Mengü Nazlı (Graduated June 2020): Effective And Efficient Parallelization Of String Matching Algorithms Using GPGPU Accelerators
- Emircan Koç (Graduated January 2020): Example Based Soft-Body Physics Simulation On Graphical Processing Units
- Uğur Taygan (Graduated June 2020): Parallelization Analysis Of Eco Tracking Algorithm On GPUs"
- Muhammet Ali Asan (Graduated September 2019): "A Cuda Based Parallel Implementation Of Region Covariance Descriptors For Real Time Processıng"

**REFEREED PUBLICATIONS** ——————————————————————————————————————
**Journals**

**J8.** Fisne, A., Kilic, B., Güngör, A., & **Ozsoy, A. Efficient heterogeneous parallel programming for compressed sensing based direction of arrival estimation**.*Concurrency and Computation: Practice and Experience*, *34*(9) **(2022)** (SCI-Expanded)

**J7.** Naderalvojoud, Behzad, and **Adnan Ozsoy. "A non-sequential refinement approach to improve word embeddings using GPU-based string matching algorithms."** *Cluster Computing* 24.4 (2021): 3123-3134. (SCI-Expanded)

**J6.** Cangir, Omer F., Onur Cankur, and **Adnan Ozsoy**. "**A taxonomy for Blockchain based distributed storage technologies."** *Information processing & management* 58.5 (2021) (SCI-Expanded)

**J5.** Asan, M. Ali, **and Adnan Ozsoy. "cuRCD: Region covariance descriptor CUDA implementation."** *Multimedia Tools and Applications* 80.13 (2021): 19737-19751. (SCI-Expanded)

**J4.** Ahmet BUGDAY, **Adnan OZSOY**, Serdar Murat OZTANER, Hayri SEVER**: "Creating Consensus Group Using Online Learning Based Reputation in Blockchain Networks",** Journal of Pervasive and Mobile Computing**, (SCI-Expanded) 2019**

**J3.** Alparslan Fişne**, Adnan Ozsoy, "Design and implementation of real-time wideband software-defined radio applications with GPGPUs",** Concurrency and Computation: Practice and Experience 30 (21), e4791, (SCI-Expanded) 2018.

**J2. Adnan Ozsoy**: **"An Efficient Parallelization of Longest Prefix Match and Application on Data Compression"**, Journal of International Journal of High Performance Computing Applications (IJHPCA) (SCI-Expanded) 2015.

**J1. Adnan Ozsoy**, Martin Swany, Arun Chauhan: **"Optimizing LZSS Compression on GPGPUs"** Future Generation Computing Systems, The International Journal of Grid Computing and E-Science (SCI-Expanded). 2013

## Book Chapters

**B3**. Canbolat, Sine, Özgür Ozan Şen, and **Adnan Ozsoy. "Blockchain Track and Trace System (BTTS) for Pharmaceutical Supply Chain."** Blockchain Technology and Innovations in Business Processes. Springer, Singapore, 2021. 227-237

**B2**. Capraz, Seval, and **Adnan Ozsoy. "Personal Data Protection in Blockchain with Zero-Knowledge Proof."** Blockchain Technology and Innovations in Business Processes. Springer, Singapore, 2021. 109-124

**B1**. **Ozsoy, A.**, Gezici, B., Bölücü, N., & Bölücü, N. **Blockchain Technology Applications in Government**. In Cross-Industry Use of Blockchain Technology and Opportunities for the Future (pp. 39-63). IGI Global. (2020).

## Conferences

**C20**. Ates, Ates, and **Adnan Ozsoy. "Blockchain Based Lateral Transshipment."** *2021 Third International Conference on Blockchain Computing and Applications (BCCA)*. IEEE, 2021

**C19**. Ozan Zorlu, **Adnan Ozsoy**, **"Immutable, Secure and Trustless Access Control Framework on Ethereum"**, 2. Ulusal Blokzincir Çalıştayı, 2019.

**C18**. Aleaddin Özer, **Adnan Ozsoy**, Oğuz Yayla, **"Kafes Tabanlı Kuantum Sonrası Algoritmaların Profil Analizi ve GPU Uygulamaları"**, 12. Uluslararası Bilgi Güvenliği ve Kriptoloji Konferansı, 2019.

**C17**. Musa Erhan, Ayca Tarhan, **Adnan Ozsoy**, **"A Conceptual Model for Blockchain-Based Software Project Information Sharing"**, International Workshop on Software Measurement and the International Conference on Software Process and Product Measurement, 2019.

**C16**. Burakcan Ekici, Ayca Tarhan, **Adnan Ozsoy**, **"Data Cleaning for Process Mining with Smart Contract"**, 4th International Conference on Computer Science and Engineering (UBMK), 2019.

**C15**. Emican Koç, **Adnan Ozsoy**, **"Approximate Data Driven Parallel Shape Matching for Soft Body Physics Simulations"**, International Conference on Artificial Intelligence and Data Processing, 2019.

**C14**. Seval Capraz, Halil Azyikmis, **Adnan Ozsoy**, **"GPU-Accelerated Route Planning of Multi-UAV Systems Using Simulated Annealing (SA) Algorithm"**, International Conference on Computer and Technology Applications, 2019.

**C13**. Muhammed Ali Asan, **Adnan Ozsoy**, **"Parallel Computation of Integral Images using CUDA"**, International Conference on Natural and Engineering Sciences 2019.

**C12**. Mengü Nazli , Onur Cankur, **Adnan Ozsoy**, **"A Parallel Comparison of Several String Matching Algorithms Employing Different Strategies"**, International Conference on Data Science, Machine Learning and Statistics 2019 (DMS-2019)

**C11**. Ahmet BUGDAY**, Adnan OZSOY,** Hayri SEVER**: "Securing Blockchain Shards By Using Learning Based Reputation and Verifiable Random Functions",** International Symposium on Networks, Computers and Communications (ISNCC'19) 2019

**C10.** Önder Ayçiçek**, Adnan Ozsoy,** Murat Berk**: " A Hybrid Model for Multiple Uses of Prepaid Telecommunication Common Assets"**, 2018 International Conference on Artificial Intelligence and Data Processing (IDAP), 1-9, 2018

**C9.** Ozan Zorlu, Selma Dilek, **Adnan Ozsoy, " GPU-Based Parallel Genetic Algorithm for Increasing the Coverage of WSNs"**, Parallel and Distributed Systems (ICPADS), 2017 IEEE 23rd International Conference on, 640-647, November 2017

**C8.** Alparslan Fisne**, Adnan Ozsoy: "Real-time Wide Band Digital Down Converter using GPGPU**", BAŞARIM 2017, Istanbul, Turkey, 14-15 September 2017, Paper invited for submission as a journal article

C7. Alparslan Fisne, **Adnan Ozsoy**: "**Grafik processor accelerated real time software defined radio applications**" 2017 25th Signal Processing and Communications Applications Conference (SIU), Antalya, 2017.

C6. **Adnan Ozsoy:" CULZSS-Bit: A Bit-Vector Algorithm for Lossless Data Compression on GPGPUs**". International Workshop on Data Intensive Scalable Computing Systems (DISCS'14), International Conference for High Performance Computing, Networking, Storage and Analysis (SC14) 2014. Paper invited for submission as a journal article

C5. **Adnan Ozsoy**, Arun Chauhan, Martin Swany:"**Fast Parallel Longest Common Subsequence with General Integer Scoring Support**". The International Workshop on Programming Models and Applications for Multicores and Manycores (PMAM'14) 2014. Paper invited for submission as a journal article

C4. **Adnan Ozsoy**, Arun Chauhan, Martin Swany: "**Achieving TeraCUPS on Longest Common Subsequence Problem using GPGPUs**". The 19th IEEE International Conference on Parallel and Distributed Systems (ICPADS'13), 2013.

C3. **Adnan Ozsoy**, Martin Swany, Arun Chauhan: "**Pipelined Parallel LZSS for Streaming Data Compression on GPGPUs**". The 18th IEEE International Conference on Parallel and Distributed Systems (ICPADS'12), 2012. Paper invited for submission as a journal article

C2. **Adnan Ozsoy**, Martin Swany: "**CULZSS: LZSS Lossless Data Compression on CUDA**", Proceedings of the IEEE International Conference on Cluster Computing(Cluster'11), Workshop on Parallel Programming on Accelerator Clusters (PPAC'11),pp.403-411, September, 2011.

C1. J.E. Davis, **A. Ozsoy**, S. Patel, and M. Taufer: "**Towards Large-Scale Molecular Dynamics Simulations on Graphics Processors**". In Proceedings of the International Conference on Bioinformatics and Computational Biology (BICoB), New Orleans, Louisiana, USA, April 2009

**PROFESSIONAL EXPERIENCE ——————————————————————————————**

**Hacettepe University, Turkey**                                    **Fall 2015 - Current**
Associate Professor - Tenured
- Tenure Track position with teaching and research responsibilities

**NETGSM, Turkey**                                                      **2017-Current**
Consultant
- Tackling technical problems in R&D projects including Big Data design problems, Data processing, Cloud solutions, Virtualization through Container technology, Microservice Architecture, Scalability Issues
- Improve academic outputs from projects such as publications, reports, patents, etc.
- Help with technical documentation

**STM, Turkey**                                                  **Spring 2020 - Fall2021**
Consultant
- Tackling technical problems in Blockchain R&D projects in Digital Identity
- Advice and guide for implementation of the blockchain based digital identity using smart contracts under a permissioned network (Hyperledger Indy & Aries)

**Havelsan, Turkey**                                                        **Fall 2019**
Consultant
- Tackling technical problems in R&D projects including Blockchain in Land Registry
- Advice and guide for implementation of the blockchain based land registry using smart contracts under a permissioned network (Hyperledger)

**NVIDIA CUDA Teaching Center, Hacettepe Univ.**           **Fall 2015 – Fall 2020**
Principal Investigator (Co-PI)
- Center for training and researching on parallel computing especially with GPUs

**Edmodo Inc., CA, USA –** Advertisement Services             **June-November 2015**
Remote Consultant
- Developing a web based advertisement portal using Apache Thrift service

- Service provides ads specific to interest groups and users
- Tracking the viewing information and display analysis for advertisers

**Bilkent University & Hacettepe University, Turkey**                    **Fall 2014**
Lecturer
- Teaching Parallel and Distributed Computing (undergraduate), Parallel and Distributed Simulation Systems(graduate), and Introduction to Programming(Java) courses

**Indiana University Bloomington, IN, USA**                    **2008-2014**
Research/Teaching   Assistant
- During Ph.D. studies engaged in several projects
- Areas of interest include parallel programming, high performance computing with GPUs, string matching algorithms, big data problems, distributed systems and application parallelism problems programming

**SuperComputing Conference (SC), LA, USA**                    **November 2010**
Student Volunteer - International Conf. for High Performance Computing and Comm.
- Involved in Education and Broader Engagement programs setup

**Google Inc. & Freifunk (Google Summer of Code 2009), CA, USA**    **Summer 2009**
Student  Developer
- Designed and developed SNMP interface to Freimap which lets monitor virtually any system data source value of a node in near real-time and react accordingly.
- This project is sponsored by Google and administrated by Freifunk

**Dell Inc., TX, USA** – Global Financial Services - IT                **June 2007-June 2008**
Software  Developer  III
- Architected and developed global financial application components
- Provided level 3 support for key business applications
- Worked on enterprise application integration with web front end
- Proficient in .NET programming using C#, Visual Basic, ASP.NET; created relational table structures and stored procedures on both Oracle 10g and SQL Server 2005
- Attended Oracle PL/SQL training

**Cypress Industries, TX USA**                    **Summer 2006**
Software  Developer  Intern
- Designed and developed both windows and web based reporting tools for sales department with .NET technologies, SQL Server on the backend

**HONORS and AWARDS**———————————————————————————————
- **NVIDIA GPU Grant Program Award**, Hacettepe University, 2017
- **NVIDIA CUDA Teaching Center Award**, Hacettepe University, 2015
- Travel grant of $400 by TCPP and NSF for the use of ICPADS'13, 2013
- Travel grant of $1000 by TCPP and NSF for the use of ICPADS'12, 2012
- **NVIDIA University sponsorship** with a hardware donation worth of $1200, 2012
- Supercomputing Student Volunteer program. (SC)'2010
- 2nd place winner at IEEE/ACM Supercomputer Conference (SC'09) High performance computing contest, November 2009.
- Google Summer of Code Program Completion, August 2009.
- Dean's List in all terms of undergraduate education, 2001-2005
- Awarded by Turkish Government (all tuitions, fees, and a stipend) a total of $192,792 for undergraduate and masters' studies in the USA, 2001-2007
- Ranked **47th** in nationwide (among 1.5 million) University Entrance Exam of Turkey, 2000

## INVITED SEMINARS AND TRAINING————————————————————————

### INVITED SEMINARS
- Speaker, Blockchain Seminars, at Havelsan, KVKK, Tapu Kadastro, Blockchain Summit, 2018-2019
- Speaker, "High Performance Computing with GPGPUs and Case Studies on GPGPU Adaptation", at Aselsan A.S., 12.2016
- Speaker, "High Performance Computing with GPGPUs and Recent Trends", at Havelsan A.S., 01.2017

### TRAINING
- Lecturer, 3 days long "**NVIDIA CUDA Training"** to Aselsan A.S. engineers, Hacettepe University, 2017

## TEACHING EXPERIENCE ————————————————————————

**Assistant/Associate Professor**

Hacettepe University, Turkey                                            **2014-Current**

- **Undergraduate**
  o **BBM 201 -** Data Structures
  o **BBM 203 -** Data Structures Lab
  o **BBM 202 -** Algorithms
  o **BBM 202 -** Algorithms Lab
  o **BBM 427 -** Technology Seminars I
  o **BBM 428 -** Technology Seminars II
  o **BBM 442 -** Parallel Programming
  o **BBM 443 –** Foundations of Blockchain

- **Graduate**
  o **BBS 516**-Data Struc. and Algorithms
  o **BIL 674 -**Parallel Programming with GPUs
  o **BIL 710 -**Parallel and Distributed SimulationSys.
  o **CMP 619 –**Blockchain and Cryptocurrencies

**Visiting Lecturer**

Bilkent University & Hacettepe University, Turkey                      **Fall 2014**
- **BBM 442 –** Parallel and Distributed Computing (Undergrad)
- **BIL 710 –** Parallel and Distributed Simulation Systems (Graduate)
- **CS 114 –** Introduction to Programming for Engineers(Undergrad)

**Teaching Assistant**                                                  **Spring 2009-2014**
- Operating Systems (Undergrad / Graduate), Parallel Programming, System Security, Data Structures, Intro. Comp. Science, Matlab for Engineers**,** Comp. Inf. Systems

**REFERENCES -** Available upon request.