

AKIL SEVIM

Graduate Student Researcher, CS Ph.D. Candidate
University of California, Riverside

✉ akilsevim@gmail.com
☎ (951) 462-6998
📍 cs.ucr.edu/~asevi006/
in /akil-sevim

EDUCATION

- PhD** in Computer Science at *University of California, Riverside* Present
- Dissertation: **Efficient Query Processing Methods for Data Exploration in Heterogeneous and Distributed Systems**
 - Committee: Prof. Ahmed Eldawy (advisor), Prof. Amr Magdy, Prof. Vassilis Tsotras, Prof. Vagelis Hristidis
- MS** in Computer Science at *University of California, Riverside* Dec 2019
- BS** in Computer Engineering at *Kocaeli University, Turkey* Jun 2015
- BS** in Teacher Training in Computer Systems at *Gazi University, Turkey* Jun 2007

TECHNICAL EXPERTISE

Languages/Tools: Java, Python, JavaScript, PHP, SQL, C#, C++, MySQL, Apache Spark, AWS
Areas: Database Internals, Query Optimization, Distributed Data Processing, Data Exploration

EXPERIENCE

- Graduate Student Researcher** at *University of California, Riverside* Sep 2017 – Present
- **Flexible Distributed Joins** (Query Optimization & Distributed Data Processing)
 - Designed Flexible Distributed Joins programming model for implementing parallel join algorithms on database management systems easily with up to 500x less code.
 - Developed the Cartilage Extensible Framework for database management systems to utilize Flexible Distributed Joins via novel "CREATE JOIN" SQL query as a component of the query optimization engine.
 - Implemented built-in Spatial, Interval, Text-Similarity Join operators and their Flexible Join versions.
 - Introduced a Theta Join operator for multi-join and a Ternary Join operator to combine filter and verify phases in partition-based flexible join algorithms and resulted in faster execution times.
 - **Apache AsterixDB** (Database Internals)
 - Implemented Plane-Sweep Spatial-Merge(PBSM) Join operator that speeds-up query processing by 12x.
 - Coded two rewrite rules that utilize PBSM join operator for spatial data analysis and debugged the Apache AsterixDB code of other operators.
 - **HQ-Filter** (A compact probabilistic filter to eliminate empty-resulting queries in interactive data exploration.)
 - Results in up-to 66% increase in server capacity, up to 15x speedup for average response time, and up to 90% decrease in the server workload.
 - Developed an interactive data exploration session recording system and a benchmark for data exploration systems.
 - **BEAST** (An open-source system for scalable exploratory data science.)
 - Added the Bloom Filter functionality as a data synopsis technique.
 - **UCR-Star** (Lightning-fast online catalog for visualizing hundreds of geospatial datasets)
 - Contributed to the visualization method and prepared a demo to reveal the power of indexing mechanism behind it.
- Teaching Assistant** at *University of California, Riverside* Jun 2019 – Sep 2020
- CS 226 - Big Data Management, Fall 2020
 - Used tools: Apache Spark, MongoDB, Apache AsterixDB
 - CS 167 - Introduction to Big Data Management, Spring 2020
 - Used tools: Apache Spark, MongoDB, Apache AsterixDB
 - CS 005 - Introduction to Computer Programming, Winter 2020
- Computer Science Instructor** at *Ministry of Education, Turkey* Sep 2007 – Sep 2017
- Instructed Web Design and Development, Database Management, and Programming classes.
 - Administrated the Web Development Department of a vocational high school
 - Organized and led many EU's Erasmus+ projects in Computer Science education

EXPERIENCE (CONT.)

Selected Entrepreneurial Activity

Sep 2007 – Sep 2017

- **kolaysinavalizi.com** (Innovated and exam analysis solution for teachers and institutions)
 - Reduces the time of exam analysis from 3 hours to 3 minutes for teachers by using speech to text technology and automating several tasks.
 - Have more than 10,000 users and recommended by European Commission's FP7 programme - project iTEC
 - Used technologies: PHP, MySQL, JavaScript, AJAX, AWS
- **Equipment Management Solution** (Launched an online system for managing tools in large organizations)
 - The personnel get information, reserve, and track the assignment of any tools on the field with an Android application through barcode readings.
 - Managers can track the maintenance, usage and performance of the tools using the online system.
 - Used by Turkey & Pakistan branches of Nordex SE which is a well-known wind turbine company.
 - Used technologies: PHP, Java, MySQL, JavaScript, AJAX
- **imzakampanyam.com** (Co-founded an online petition web site)
 - Over 10,000 petitions and 1 million signatures and one of the most popular online petition websites of Turkey.
 - Used technologies: PHP, MySQL, JavaScript, AJAX

PUBLICATIONS

- Flexible Distributed Join Queries (Work in-progress)
Akil Sevim, Ahmed Eldawy, Michael Carey, and Vassilis Tsotras
- A brief introduction to geospatial big data analytics with apache AsterixDB SpatialAPI '21
Akil Sevim, Mehnaz Tabassum Mahin, Tin Vu, Ian Maxon, Ahmed Eldawy, Michael Carey, and Vassilis Tsotras
- Beast: Scalable Exploratory Analytics on Spatio-temporal Data CIKM '21
Ahmed Eldawy, Vagelis Hristidis, Saheli Ghosh, Majid Saeedan, Akil Sevim, A.B. Siddique, Samridhi Singla, Ganesh Sivaram, Tin Vu, and Yaming Zhang
- HQ-Filter: Hierarchy-Aware Filter For Empty-Resulting Queries in Interactive Exploration MDM '21
Best Student Paper Runner-up Award
Akil Sevim and Ahmed Eldawy.
- A Demonstration of Interactive Exploration of Big Geospatial Data on UCR-Star SIGSPATIAL '20
Best Demo Award
Saheli Ghosh, Akil Sevim and Ahmed Eldawy

TALKS & WORKSHOPS

- Geospatial data management and analysis with Apache AsterixDB BOSS, VLDB 2021
- A Brief Introduction to Geospatial Big Data Analytics with Apache AsterixDB SpatialAPI, SIGSPATIAL 2021
- HQ-Filter: Hierarchy-Aware Filter For Empty-Resulting Queries in Interactive Exploration MDM '21

AWARDS & HONORS

- Best Student Paper (Runner-up) Award, IEEE MDM 2021
- Best Demo Award, ACM SIGSPATIAL 2020
- Dean's Fellowship from College of Engineering, University of California, Riverside 2019 – 2020
- YLSY - Scholarship by Ministry of National Education, Turkey 2017 – 2019

SERVICE & OUTREACH

- Mentorship:** Google Summer of Code 2022, Two MS students (graduation projects) and two BS level students @UCR CS Department for Apache AsterixDB related studies, A CS MS student from University of Salzburg for their thesis about using Flexible Distributed Joins for realization of JSON similarity join.
- Panelist:** IEEE x ACM @UCR Research Panel
- Reviewing Activity:** VLDB, ICDE, SIGMOD, SIGSPATIAL, EDBT, MDM, Geoinformatica