

Rakan A. Alseghayer

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RESEARCH INTERESTS

- Big data Management, data Exploration, spatiotemporal databases, in-memory access methods, timeseries databases, database management systems, data stream management systems, distributed systems, machine learning techniques in databases, high performance computing (HPC), reliability, and computer (and information) security.

EDUCATION

- **University of Pittsburgh** Pittsburgh, PA, USA
• *Ph.D. in Computer Science*
Aug. 2014 - present
Thesis: Optimizing Operators for Temporal and Spatiotemporal Data
Advisor: Prof. Panos K. Chrysanthis (panos@cs.pitt.edu)
- **University of Pittsburgh** Pittsburgh, PA, USA
• *M.Sc. in Information Sciences; GPA: 3.98/4*
May 2011 - Apr. 2013
Specialization: Information Security and Networking
- **King Saud University** Riyadh, KSA
• *B.Sc. in Computer Science; GPA: 4.68/5*
Aug. 2004 - Jun. 2008

PUBLICATIONS

- Alseghayer R., Petrov D., Chrysanthis P.K., Sharaf M., Labrinidis A. "DCS: A Policy Framework for the Detection of Correlated Data Streams." [**Lecture Notes in Business Information Processing, vol 337. Springer**].
- B. Nixon, R. Alseghayer, C. Costa, B. Graybill, X. Zhang, and P. K. Chrysanthis, "Efficient Detection of COVID-19 Exposure Risk." [**IEEE MDM '22**].
- Rakan Alseghayer. "Racoon: Rapid Contact Tracing of Moving Objects Using Smart Indexes." [**IEEE MDM '21**].
- Daniel Petrov, Rakan Alseghayer, Panos K. Chrysanthis, Daniel Mosse. "Smart Room-by-Room HVAC Scheduling for Residential Savings and Comfort." [**IGSC '19**].
- D. Petrov, R. Alseghayer, P. K. Chrysanthis. "Mitigating Congestion Using Environment Protective Dynamic Traffic Orchestration." [**MDASC '19 - Colocated with MDM '19**].
- Rakan Alseghayer, Panos K. Chrysanthis, Bruce R. Childers. "Reproducibility Score for Computational Artifacts." [**MWS '19**].
- Daniel Petrov, Rakan Alseghayer, Daniel Mosse, Panos K. Chrysanthis. "Data-Driven User-Aware HVAC Scheduling." [**IGSC '18**].
- Rakan Alseghayer, Daniel Petrov, Panos K. Chrysanthis. "Strategies for Detection of Correlated Data Streams." [**ExploreDB '18 - Colocated with ACM SIGMOD '18**].
- R. Alseghayer, D. Petrov, P. K. Chrysanthis, M. Sharaf, A. Labrinidis. "Detection of Highly Correlated Live Data Streams." [**BIRTE '17 - Colocated with VLDB '17**].
- D. Petrov, R. Alseghayer, M. Sharaf, P. K. Chrysanthis, A. Labrinidis. "Interactive Exploration of Correlated Time Series." [**ExploreDB '17 - Colocated with ACM SIGMOD '17**].

TEACHING EXPERIENCE

- **University of Pittsburgh** Pittsburgh, PA
• *Lecturing Teaching Assistant*
 - **CS1555/2055 Database Management Systems**: Spring '20, Fall '20, Spring '21, Fall '21, Spring '22.
 - **CS1501 Algorithm Implementation**: Spring '20, Fall '20, Spring '21, Fall '21, Spring '22.
 - **CS0011 Introduction to Computing for Scientists**: Summer '21.
- **University of Pittsburgh** Pittsburgh, PA
• *Teaching Assistant*
 - **CS2550 Principles of Database Systems**: Spring '21, Spring '22.
 - **CS1645/2045 Introduction to High Performance Computing**: Fall '15, Fall '16.
- **King Saud University** Riyadh, KSA
• *Lecturing Teaching Assistant*
 - **CS311 Design and Analysis of Algorithms**: Spring '14.
 - **CS113 programming -2-**: Spring '14.
 - **CS215 Procedural Programming using C Language**: Fall '13.
 - **CS111 programming -1-**: Fall '13.

WORK EXPERIENCE

- **Advanced Electronics Company Ltd. (AEC)** Riyadh, KSA
Associate Software Engineer, Systems Development, R&D Department Oct. 2008 - Jul. 2009
 - **Industrial Business Unit:** Developed parts of the DCU “Data Collection Unit” as well as the communication part “TCP/IP” under the .Net environment for the project (ADDAD4), which is a smart energy meter system.
 - **Military Business Unit:** Developed parts of a military encrypted communication system.

PROFESSIONAL & EDUCATIONAL TRAINING

- **University of Washington** Seattle, USA
Educational Outreach Program Jan. 2010 - Mar. 2011
 - **Certificate:** Business for International Professionals
 - **Certificate:** Fundamentals of Project Management
 - **Certificate:** ELP Campus Intensive English Program (IEP)
- **Etihad Etisalat “Mobily”** Riyadh, KSA
Trainee, Enterprise Resource Planning (ERP) Department Oct. 2008 - Jul. 2009
 - **Developed a knowledge base application under the .Net environment where the ERP team can log their day-to-day problems and challenges with their resolutions.:**

AWARDS, SCHOLARSHIPS & HONORS

- Student scholarship winner for the cybersecurity event Black Hat ‘22.
- Awarded the Diversity and Inclusion Award at the Ph.D. forum of the 22nd IEEE International Conference on Mobile Data Management (MDM ‘21).
- Awarded the People’s Choice of Best Pitch Video at the 22nd IEEE International Conference on Mobile Data Management (MDM ‘21).
- PITT CS Department Orrin E. and Margaret M. Taulbee Award runner-up (2021).
- Student travel grant winner for the 11th International Workshop on Real-Time Business Intelligence & Analytics (BIRTE ‘18).
- King Saud University Scholarship for a PhD in Computer Science (2014 - present).
- Saudi Arabian Cultural Mission Scholarship for a MS in Information Science (2010 - 2012).
- Graduated undergrad with Second Class Honors from King Saud University (2008).

PROFESSIONAL SERVICE & MEMBERSHIPS

- **Committee Member:** Diversity and Inclusion (D&I) compliance committee in The 16th ACM International Conference on Distributed and Event-based Systems (DEBS ‘22).
- **Student Volunteer:** The International Workshop on Self-Managing Database Systems (SMDB ‘21, SMDB ‘22).
- **External Referee:** The International Conference on Database Systems for Advanced Applications (DASFAA ‘21).
- **External Referee:** The annual IEEE International Conference on Data Engineering (ICDE ‘17, ‘19, ‘20, ‘21).
- **External Referee:** The ACM Special Interest Group on Management of Data (SIGMOD ‘17).
- **External Referee:** The IEEE International Conference on Mobile Data Management (MDM ‘18, ‘19).
- **External Referee:** The Conference on Information and Knowledge Management (CIKM ‘19).
- **External Referee:** The ACM/IEEE Conference on Internet of Things Design and Implementation (IoTDI ‘17).

SKILLS SUMMARY

- **Prog. Languages:** C++, JAVA, Python, SQL, Bash
- **DBMSs:** PostgreSQL, Oracle, MySQL, SQLite
- **Frameworks:** Scikit-learn, TensorFlow, NumPy, Scipy, Matplotlib
- **Tools:** GIT, Docker, Kubernetes
- **Security:** Secured Java, Cryptography
- **Computer Networks:** TCP/IP programming, Traffic and Packet Monitoring (Wireshark, IPTraf), Performance Analysis, Routing Protocols
- **Natural Languages:** Arabic (Native), English (Bilingual Proficiency), Spanish (Beginner)

VOLUNTEERING

- Food distribution for the Greater Pittsburgh Community Food Bank.
- Web developer for NephroTalk Conservative Care Curriculum.
- IT support for MusiCare Connections.