

## Dr. Khaled R. Ahmed

+1-346-218-2068, 105 Greg Ln, Carbondale, IL, 62901, [kahmed@cs.siu.edu](mailto:kahmed@cs.siu.edu)

### SUMMARY

- ❖ *Over 19 years of experience in Academia, Research and Industry.*
- ❖ *Well-qualified with Ph.D. in Computer Science, M.Sc. in Computer Science and B.Sc. in Pure Math & Computer Science.*
- ❖ *Excellent Academic and research background in Deep Learning (ML), Computer Vision (CV), Distributed Systems (DS), Parallel Computing (PC), Software Engineering (SE), and Intelligent Transport systems (ITS) and published over 56 articles in journals and proceedings. Involved as PI and Co-I in about 8 funded research projects. In addition, I edited four books in Peer-to-peer, Wireless sensor network, advances in Big data, blockchain and Deep Learning.*
- ❖ *Recent research interests in Big data and Deep learning to analysis videos on real-time.*

### SKILLS-SET

- Knowledge on **Software Engineering, High performance computing including distributed systems and parallel computing and Deep Learning Techniques**
- Deep Learning: **pytorch, TensorFlow, Keras, pitch**
- Software Engineering: **Agile, Junit, Ant, etc.**
- Big Data: **MapReduce- Hadoop, Apache Spark**
- Parallel Computing: **MPICH, GPU, OpenMP**
- Computer Vison: **OpenCV, Matlab**
- Programming Skills: **C, C++, C#, Java, Python, R**
- Mobile Application Development (**IOS, Android**)
- Presentation Skills: **PowerPoint, Google charts**
- Learning management systems: **D2L, Piazza, Moodle**
- Curriculum development, **ABET** accreditation, and Graduate advising

### EDUCATION

1. **PhD, Computer Science**, Tokyo Institute of Technology, Tokyo, Japan, 2004
2. **Master of Computer Science**, Ain Shams University, Cairo, Egypt, 1999
3. **Bachelor of Pure Math and Computer Science**, Ain Shams University, Cairo, Egypt, 1990

### WORK EXPERIENCE

- **Southern Illinois University, School of Computing, August 2019 -Now, Tenure-track Assistant Professor of Computer Science**
  - Teaching undergraduate courses:
    - Fall 2019: Software Engineering and practices, Operating Systems and Software Engineering
    - Spring 2019: Introduction to Computer Science, Discrete Mathematics and Operating Systems.
    - Spring 2020, Fall2020: Operating Systems
    - Spring 2021: Operating Systems and Distributed Programming Applications
    - Fall 2021: Operating Systems
    - Spring 2022: Operating Systems and Distributed Programming Applications
    - Chair of (2) Ph.D. dissertation and (5) M.Sc. thesis committees (4 graduated)
    - Member of (7) Ph.D. dissertation and (3) thesis committees
    - Member of the Graduate committee 2018 -Now , school of Computing.
    - Member of the Faculty search committee 2019 -Now, school of computing.
    - Member of the Undergraduate Program, Curriculum and Assessment Committee, school of Computing
    - Member of the International recruiting evaluation committee, Southern Illinois University

- **Southern Illinois University, August 2018 -June 2019, Clinical Assistant Professor position of Computer Science**
    - Teaching undergraduate courses:
      - Fall 2018: Introduction to Computer Science, Problem Solving and Software Engineering and practices,
      - Spring 2019: Introduction to Computer Science, Discrete Mathematics and Operating Systems.
    - Member of the Graduate committee.
  - **King Faisal University, Saudi Arabia, 2007 - 2018, Associate Professor of Computer Science**
    - Taught courses (*ABET Accredited Computer Science Undergraduate Program*): Operating Systems, Advanced Operating System, algorithm design and analysis, Introduction to Computing, Fundamental Programming, Data Structure and Algorithms, Discrete mathematics, Compiler Design and Multi-agents Systems.
    - Wrote course materials such as syllabi, homework assignments and handouts.
    - Planned, evaluated, and revised course content and course materials in line with the curriculum requirements of the Computer Science Department and in line with ACM Curriculum guidance.
    - In addition, each year I supervised about 3-4 graduation project teams that includes three students. Chaired two student's project committees each year.
    - Advised and mentored undergraduate students.
    - Coached students on local programming contest, public speaking and presentation skills.
    - Taught Courses (*Master of Science, Computer Science Program*): Distributed Systems, Principle of Distributed Computing and Research Methodology.
    - Served on three university committees, six college committees and acted as chair of the Computer Science Program Curriculum, Postgraduate, Academic Affair and Local Programming Contest Committees.
    - Demonstrated a continued commitment to undergraduate and postgraduate teaching through full participation in the college community.
    - Involved in four research projects as principal investigator and other four research projects as co-investigator.
    - Medium of instruction is English in the College of Computer Science and IT. In addition, department council and committee meetings are conducted in English.
    - In addition, department council and committee meetings are conducted in English.
  - **Ain Shams University, Cairo Egypt, 2004 - 2005, Assistant Professor of Computer Science**
    - Involved in teaching undergraduate students. Taught courses (ABET undergraduate): Operating Systems, Advanced Operating System, Fundamental Programming, Data Structure and Algorithms.
    - Taught Courses (Postgraduate): Distributed Systems to master students
  - **The university of Tokyo, 2005 - 2007, Postdoctoral Researcher**
    - Involved in research project funded by Japan Science and Technology Agency.
    - Conducted basic and applied research on Distributed Systems (e.g. Peer-to-Peer and Web Services).
    - Worked with team from Tsukuba University on distributed systems research.
  - **Technical Chemnitz University, Germany, 1999 - 2001, Visiting Researcher**
    - Involved in a research project titled “Numerical Simulations over massive Parallel Architectures”. The main goal was to develop a message passing MPI library called CHEMPI for heterogeneous cluster computing.
    - Developing the CHEMPI on base of a comparative measurement including two computing interface technologies as follows.
    - Uniting the Scalable Coherent Interface (SCI), a technology to build distributed shared memory as well as message passing systems on top of it, Using Virtual Interface Architecture (VIA), a generic architecture aiming at low latency.
  - **Ain Shams University, Cairo Egypt, 1990 - 1999, Instructor/Lecturer**
    - Taught several undergraduate courses
-

- Supervise **students' laboratory work**.
- **Prepare** labs' materials to undergraduate on topics such as programming and data structures.

### SAMPLES OF COMMITTEE SERVICES IN HIGHER EDUCATION

- **Member of University Scientific Council (USC) (2018).** Recommended by the university council and approved by the minister of education. The USC supervises the scientific affairs, research, and publishing of academic staff of the university.  
Services: Evaluating academic staff file for promotion, drafting research encouraging rules, proposing scientific research centers establishment, and managing connections with research centers outside the University.
- **Executive Supervisor of postgraduate Programs (Equivalent to College Vice-Dean), College of Computer Science and IT, King Faisal University, Saudi Arabia (2014-2018)**  
Services: Establishing programs, managing all postgraduate activities such as admissions process, distribution of courses to the instructors and supervising the examinations and results of Master students.
- **Member, Strategic Plan and Quality Assurance for Postgraduate Programs, King Faisal University (2017-2018).**  
Services: Assure the quality of the offered postgraduate programs, design, develop and evaluate the university strategic plans for the postgraduate programs.
- **Chair, Computer Science Program Curriculum Committee, Computer sciences dept., King Faisal University, Saudi Arabia (2009 - 2013)**  
Services: Coordinating the curriculum minor/major revision processes according to ACM guidance.
- **Member, Quality and Accreditation Committee, College of Computer Science and IT, King Faisal University, Saudi Arabia (2012-2015).**  
Services: Preparing the required documents for self-study and processing of accreditation of computer science program within the college namely - computer science and computer information systems programs, for **ABET**, and preparing the required documents for self-study for accreditation from **NCAAA**. Engaged in the computer science program major revision/development process.
- **Chair, academic affair committee, College of Computer Sciences and IT, King Faisal University, Saudi Arabia, (2007-2010)**  
Services: Coordinating the academic affair activates with the deanship of academic affairs at the university level, such as students' admissions, schedule, exam monitoring, etc.
- **Chair, Local Programming Contest Committee, College of Computer Science and IT, King Faisal University, Saudi Arabia (2008-2012).**  
Services: Monitoring the whole contest activities such as venue preparation (lab), questions preparation (ACM standards), chair judging committee, and release results. Guide and encourage students to compete in regional programming contests.

### PROFESSIONAL ORGANIZATION MEMBERSHIP

1. Member, IEICE Japan.
2. Member, Technical Programming committee of about 32 Int. Conf. (IEEE, ACM, Springer) 2005 - 2020
3. Chair (Co-chair)/Session chair, about 8 International IEEE Conferences
4. Evaluator member of one of the top research projects funding organization "King Abdulaziz City for Science and Technology", 2013- 2018.

### SAMPLES OF RESEARCH GRANTS (Total fund granted about \$301k)

- 1- **Research project:** "Advancing the Deep Learning algorithms for Dynamic Scenes Perception", submitted to NSF Computer and Information Science and Engineering (CISE): Core Programs, (Date: Oct. 2021, total budget \$575k, Submitted, under-review).
  - 2- **Research project:** Artificial Intelligence for Greener Livestock: Educational and Research, submitted to USDA, (Date: Dec 2021, total budget \$150k, Submitted, under-review).
-

- 3- **Research project:** DVCAS: The Development of Automated Deer Detection system to reduce Deer-Vehicle Collision, submitted to Illinois Department of Transportation (Date: March 2020, Budget about \$250K, not funded due to unavailable resources).
- 4- **Research project:** Firearm Harm Prevention: Detecting Firearm Carrying Behavior using Latent Class Analysis and Detecting firearm using Deep Learning Techniques, submitted to Centers for Disease Control and Prevention (Date: May 2020, Budget about \$1.25M, not funded).
- 5- **Research project:** The Development and Implementation of Computerized Educational and Awareness Modules (CEAM) for Students, Teachers, and Parents for Effective Response to School Violence, submitted to department of Justice (DoJ) (Date: June 2019, Budget about \$1.5M, not funded).
- 6- **Research project:** Design and Deployable GPS-Based System to Avoid Camel-Vehicle Accidents, AT-4-3, supported by King Abdulaziz City for Science and Technology, 2010-2012.  
**Role: Co-I (however founder of the project).**
- 7- **Research Project:** Load balancing algorithm for Peer-to-Peer Systems, supported by DSR, KFU, Saudi Arabia, 2011-2012  
**Role: PI**
- 8- **Research project:** Peer-Peer Efficient Load Balancing, supported by Deanship of Scientific Research (DSR), King Faisal University (KFU), Saudi Arabia, 2012-2013.  
**Role: PI.**
- 9- **Research project:** Parallel algorithm of Time-Domain Analysis on a Rectangular Reflector Antenna, supported by DSR, KFU, Saudi Arabia, 2014-2015.  
**Role: Co-I**
- 10- **Research Project:** Developing an Efficient Parallel Template Matching algorithm for inspecting Fabric defects of products in KSA factories, supported by DSR, KFU, Saudi Arabia, 2014-2015.  
**Role: PI**
- 11- **Research project:** Parallel-based Techniques for Managing and Analyzing the Performance on Semantic Graph, supported by DSR, KFU, Saudi Arabia, 2017-2018.  
**Role: CO-I.**

#### SAMPLES OF JOURNAL PUBLICATIONS (out of 17)

- 1- **Khaled R. Ahmed**, "Smart pothole detection using Deep learning algorithms based on dilated convolution", Sensors 2021; 21(24):8406, Mdpi, <https://doi.org/10.3390/s21248406>, (Impact factor 3.576).
- 2- **Khaled R. Ahmed**, "Parallel Dilated CNN for Detecting and Classifying defects in Surface Steel Strips", EURASIP Journal on Image processing and video processing, Springer. (Submitted July, 2021, Impact factor 2.097).
- 3- Y. Alsenani, G. Crosby, **Khaled R. Ahmed** and T. Velasco, "ProTrust: A Probabilistic Trust Framework for Volunteer Cloud Computing," in IEEE Access, Vol. 8, 2020. doi: <https://10.1109/ACCESS.2020.3009051>. (Impact Factor: 3.745)
- 4- A. Algozaibi, **Khaled R** and S. Albahli, "Parallel-Based Techniques for Managing and Analyzing the Performance on Semantic Graph," Parallel Processing Letters, Vol. 30, No. 02, 2050007, 2020. Doi: <https://10.1142/S0129626420500073>
- 5- **Khaled R.**, "Fast and Parallel Summed Area Table for Fabric Defect Detection", International Journal of Pattern Recognition and Artificial Intelligence, Vol. 30, No. 9 (2016) 1660004 (23 pages). (Impact Factor: 1.375)
- 6- Ghada Sami, **Khaled R.**, "A Parallel Implementation for the Time-Domain Analysis of a Rectangular Reflector Antenna using OpenMP", Journal of Applied Computational Electromagnetics Society, Vol. 30, No. 7, 2015. (Impact Factor: 0.806).
- 7- **Khaled R.**, Yasser Fouda, "Parallel Vectoring Algorithm for Pattern Matching," Research Journal of Applied Sciences, Engineering and Technology, 8(9): 1066-1074, 2014.
- 8- **Khaled R.**, A. UlHaque, M. Zahrani, "GPS-Based Camel-Vehicle Accidents Avoidance System: Designing, Deploying and Testing," International Journal of Innovative Computing, Information and Control, Vol. 9, No. 7, July 2013.
- 9- **Khaled R.**, "Peer-to-Peer Overlay Network for On-demand Video Streaming", Journal of Computer Sciences and Control systems, Vol. 5, No. 1, May 2012.

- 10- **Khaled R.**, “An Efficient Load Balancing Algorithm for P2P Systems,” Journal of Communications, Academy Publisher, Vol. 6, No.8, 648-656, 2011.
- 11- **Khaled R.**, A. Yonezawa, “A Self-organized Clustering-based Overlay Network for Application Level Multicast”, Journal of Networks, Academy publisher, Vol. 4, No. 1, April 2009.
- 12- **Khaled R.** et al., “Autonomous Decentralized Community Communication for Information Dissemination “, IEEE Internet Computing Magazine, pp. 29-36, May/June 2004.

### SAMPLES OF CONFERENCE PUBLICATIONS (out of 39)

- 1- *Khaled R. Ahmed*, “Parallel Dilated CNN for Detecting and Classifying Defects in Surface Steel Strips in Real-Time,” IntelliSys2021, Springer, Lecture Notes in Networks and Systems, Sept 2021.
- 2- K. Subash and **Khaled R. Ahmed**, “Potholes Detection using Deep Learning and Area Estimation using Image Processing,” IntelliSys2021, Springer, Lecture Notes in Networks and Systems, Sept 2021.
- 3- P. Acharya, T. P. Chu, **Khaled R. Ahmed** and S. Kharel, “Detection and segmentation of defects in x-ray computed tomography image slices of additively manufactured components using deep learning”, 2021 ASNT Research Symposium, April. 27-29, 2021.
- 4- MD Jawad Siddique, **Khaled R. Ahmed**, “Deep Learning Technologies to Mitigate Deer-Vehicle Collision”, Book Chapter in Deep Learning and Big Data for Intelligent Transportation, Studies in Computational Intelligence, Springer Verlag. Accepted and expected to be published in May 2021, (Impact factor: 1.73).
- 5- Y. Alsenani, G. Crosby, **Khaled R. Ahmed** and T. Velasco, “Towards multi-criteria volunteer cloud service selection,” 2020 Int. IEEE Conf. on Cloud Computing (CLOUD2020), Springer, Sept. 18 - 20, 2020.
- 6- **Khaled R Ahmed**, Majed AlSaeed and Maryam AlJumah, “Parallel Algorithms to detect and classify defects in Surface Steel Strips,” ICAI’20 the 22nd Int'l Conf on Artificial Intelligence, the World Congress in Computer Science, Computer Engineering, and Applied Computing (CSCE’20). Transactions on Computational Science & Computational Intelligence, Springer, 2020 (Acceptance rate 16%).
- 7- Henery Hexmoor and **Khaled R. Ahmed**, “Real World Road Platoons and Negative Obstacles,” Int. Conf. Computational Science and Computational Intelligence, IEEE Proc. 2019, (Acceptance rate 17%, received “Outstanding Achievement Awards”).
- 8- **Khaled R.** and Nahed Alshaeer, “An Efficient Defect Detection Classification Algorithm for Ceramic Tiles, “9th Asian Conf. on Intelligent Information and Database Systems, 3-5 April 2017, Kanazawa, Japan vol. 710, Springer Proc, pp. 235-247, DOI: 10.1007/978-3-319-56660-3.
- 9- Y. Fouda, **Khaled R.**, “An Efficient Implementation of Normalized Cross-Correlation Image Matching based on Pyramid”, IEEE Proc. iCAST&UMedia 2013.
- 10- **Khaled R.**, Moawia Elfaki Yahia, “Addressing the Out-of-date Problem for Efficient Load Balancing Algorithm in P2P Systems,” ICITCS 2012 Springer, 459-479, 2013.
- 11- Salma Mahgoub Gaffer, Moawia Elfaki Yahia and **Khaled R.**, “Genetic Fuzzy System for Intrusion Detection: Analysis of Improving of Multiclass Classification Accuracy Using KDDcup-99 Imbalance Dataset.” IEEE Proc. HIS, 2012.
- 12- **Khaled R.**, Asrar U. Haque “A Minimum Spanning Tree Algorithm for Efficient P2P Video Streaming System “, IEEE Communication Society Proc. of 12th Int. conference on Advanced Communication Technology, Korea, Feb. 2010.

### Graduate Students (Thesis)

- 1- Ph.D. student Alsenani, Yousef (Graduated Fall 2020)  
(Trust frameworks for Volunteer Cloud Computing)
  - 2- M.Sc. student Kambhatla, Akhila (Graduated Spring 2020)  
(Automatic Firearm Detection by Deep learning)
  - 3- M.Sc. Student Kharel, Subash (Graduated Spring 2021)  
(Deep Learning, Pothole-detection in Highways)
  - 4- M.Sc. Student Siddique, Jawad (Graduate Fall 2021)  
(Deep learning, Animal-detection to mitigate Animal-Vehicle collisions)
-

- 5- Ph.D. Student Zakyah Alqahtani (Co-supervisor)
- 6- Ph.D. Student Kambhatla, Akhila (Expected to be graduated Fall 2023)  
(Real-time automatic Handgun detection in drone stream video using deep learning)
- 7- M.Sc. Student Almalky, Abeer M (Expected to be graduated Fall 2022)  
(Deep learning techniques to detect and classify Weed on fields)
- 8- M.Sc. Student Goshika, Sandeep (Expected to be graduated Fall 2022)  
(Soybean pathogens and diseases detection and classification using deep learning techniques)

## REFERENCES, INDEX AND CITATION (*Khaled R Ahmed*)

### Home Page

<https://www2.cs.siu.edu/~kahmed/index.html>

**Researchgate:** [\(2\) Khaled R. Ahmed \(researchgate.net\)](#)

**Thomson Reuters Web of Science:** (Researcher ID: M-3437-2016)

<http://www.researcherid.com/rid/M-3437-2016>

**Scopus:** (Author ID: 6602846782)

<https://www.scopus.com/authid/detail.uri?authorId=6602846782>

**Google Scholar:**

<https://scholar.google.com/citations?user=FYKqgh4AAAAJ&hl=en>

**ORCID:** [Khaled R Ahmed \(0000-0002-3707-4316\) \(orcid.org\)](#)

**Sciprofiles :** [Khaled Ahmed \(sciprofiles.com\)](#)

**DBLP:** [dblp: Khaled Ragab \(uni-trier.de\)](#)

**Linkedin:** <https://www.linkedin.com/in/kragab>

**Pre-homepages:**

<http://www.yl.is.s.u-tokyo.ac.jp/~ragab>

[http://www.kfu.edu.sa/en/Colleges/Computer\\_Science/Departments/Documents/kabdultawab-en.htm](http://www.kfu.edu.sa/en/Colleges/Computer_Science/Departments/Documents/kabdultawab-en.htm)