AHMAD ABDULAZIZ BIN RABIAH

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EDUCATION

Purdue University   **West Lafayette, IN**
M.S. in Electrical and Computer Engineering   *August 2021 – Present*

- Related coursework: Artificial Intelligence; Deep Learning.

King Saud University   **Riyadh, Saudi Arabia**
B.S. in Electrical Engineering   *August 2013 – December 2018*

- Graduated with second class honors.
- Minor in communication systems with a focus on signal processing.
- Worked at Prince Sultan Advanced Technology Research Institute (PSATRI) on investigating new beampattern design algorithms for radars and communication systems.

RESEARCH INTERESTS

My interests include data-driven computer vision, artificial intelligence, machine learning, and modeling.

RESEARCH EXPERIENCE

PSDSARC, Applied Research and Technology Development Division   **Riyadh, Saudi Arabia**
Radar EW Systems Engineer   *March 2019 – August 2021*

Conducted research and development of radar and EW systems, with a focus on sophisticated signal processing and the use of software-defined radio hardware for development and deployment (SDR).

- Designed and developed a multi-channel multi-frequency real-time acquisition system for a passive radar to improve the detectability by fusing multi-band target detections utilizing a field-programmable gate array (FPGA).
- Devised a detection system for identifying friend or foe (IFF) responses, direction-finding and a mode classifier to identify aircraft.
- Developed an electronic support measure system (ESM) for extracting characteristics from identified unmanned aerial vehicles (UAVs) in real time using a super-resolution method to calculate directional bearings.
- Demonstrated a real-time spectrum analyzer (RTSA) by developing the fast Fourier transform (FFT) algorithm with overlapping processing and persistent displays, including optimization on processing for implementation.

REFEREED PUBLICATIONS

[1] Abdulrahman Bin Rabiah, K. K. Ramakrishnan, Silas Richelson, **Ahmad Bin Rabiah**, Elizabeth Liri, and Koushik Kar. "Haiku: Efficient Authenticated Key Agreement with Strong Security Guarantees for IoT." In *International Conference on Distributed Computing and Networking 2021 (ICDCN21)*. ACM, 2021.

[2] **Ahmad Bin Rabiah**, Mohammed Alsakabi, Omar Aldayel, and Saleh Alshebeili. "SDR-Based Hardware Implementation and Performance Measurement of Transmit Beampattern Design Algorithms." In *2020 IEEE Radar Conference (RadarConf20)*. IEEE, 2020.

ACADEMIC PROJECTS

King Saud University   **Riyadh, Saudi Arabia**
Practical Radar Beampattern Design   *December 2018*

- Simulated and assessed the state-of-the-art digital beamforming algorithms for designing a transmit beampattern for multiple-input multiple-output (MIMO) systems.
- Validated simulation results with experimental work utilizing state-of-the-art RF devices and measuring equipment at PSATRI research lab.

King Saud University   **Riyadh, Saudi Arabia**
Software-Defined Networking   *October 2018*

- Researched software-defined networking (SDN), with a broad review of layer architecture and control layer interfaces in computer networks, in which the work presented to a 20-student class.
- Co-authored an essay with an engineer that was chosen as the best of ten and published on Technology World website: http://bit.ly/SDNArticle.

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WORK EXPERIENCE

PSDSARC, Applied Research and Technology Development Division   **Riyadh, Saudi Arabia**
Radar EW Systems Engineer   *March 2019 – August 2021*

- Assessed a preliminary passive radar system deployment and spectrum analysis in country's borders.
- Collaborated with the High-Level Technical Committee for the Evaluation of Anti-UAV Systems, for evaluating EW anti-drone systems.
- Participated in the PSDSARC delegation to Rohde & Schwarz GmbH in Munich, Germany. A research and development visit aimed for technology transfer to Saudi Arabia.
- Collaborated with a cooperation team between PSDSARC and King Abdulaziz University on research and development between applied research centers and academic institutions.

Imam Muhammad ibn Saud Islamic University   **Riyadh, Saudi Arabia**
Electrical Engineering Intern   *July 2017 – September 2017*

- Worked in the electrical operation and maintenance division.

SKILLS

- **Programming Languages:** Python, Java, MATLAB, LabVIEW
- **Frameworks:** TensorFlow, Keras, PyTorch
- **Languages:** English (Proficient), Arabic (Native)

VOLUNTEER WORKS

King Saud University   **Riyadh, Saudi Arabia**
Graduation Ceremony Speaker   *May 2018*

- Introduced 270+ graduate students in the graduation ceremony of the College of Engineering.

Summer Camp by Ministry of Education   **Huraymila, Saudi Arabia**
Photography Tutor   *July 2013*

- Taught a training course on the fundamentals of photography for 20 youths in a summer camp.

Huraymila Governorate   **Huraymila, Saudi Arabia**
Eid Photographer (Twice)   *2011, 2012*

- Collaborated with four other photographers to provide press reports of Eid Al-Fitr festival.

AWARDS AND HONORS

- **Full Scholarship for Master's Degree.** Awarded by Saudi Arabian Cultural Mission, Fairfax, VA.   *August 2021*
- **Managing Director Honor.** Awarded for successes in EW School.   *September 2019*
- **Second Class Honors.** Bachelor of Science in Electrical Engineering, KSU.   *December 2018*
- **Dean's List.** King Saud University, Riyadh, Saudi Arabia.   *May 2014*
- **Public Speaking Competition.** Won first place among Riyadh regional competitors.   *March 2012*

RELEVANT COURSES

Stanford University   **Online**
Machine Learning   *June 2021*

National Instruments   **Khobar, Saudi Arabia**
LabVIEW FPGA   *December 2020*
LabVIEW Core 2   *October 2019*
LabVIEW Core 1   *October 2019*

IEEE Aerospace and Electronic Systems Society   **Boston, MA**
Radar Summer School   *April 2019*

University of California, Los Angeles   **Los Angeles, CA**
English Program at UCLA Extension   *June 2014 – September 2014*