

# Yousef Khojah

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## EDUCATION

**Bachelor of Engineering in Electrical Engineering, Minor in Computer Science** **Graduation: May 2027**

*University of Illinois at Urbana-Champaign, IL*

**Dean's List: Spring 2024, Fall 2024**

- Relevant Coursework: *AI, Applied Machine Learning, Computer Systems Engineering, Fields and Waves, Digital Systems Laboratory, Analog Signal Processing, Statistics and Probability*

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## RESEACH EXPERIENCE

**King Abdullah University of Science and Technology, Saudi Arabia**

**June – August 2025**

*Chaos-based Image Encryption on Stream Cipher and Universal Adversarial Perturbation*

- Developed algorithms in Python to encrypt images using the data of a VCSEL-based optical true random source, verified for high entropy and speed
- Implemented the algorithms for a chaotic stream cipher encryption and Universal Adversarial Perturbation (UAP) generation. Chaotic-maps encryption was also implemented for comparisons
- Evaluated UAPs on a subset of ImageNet with ResNet-50 and measured the fooling rate

**King Abdullah University of Science and Technology, Saudi Arabia**

**June 2021 – May 2022**

*Digital Upgrade of an Analog Communication System Using Software-Defined Radio*

- Used GNURadio to add features on the system like half-duplex transmission and operation on a wide variety of carrier frequencies
- Characterized components from antennas, power amplifiers, local oscillators, and band-pass filters
- Tested different carrier frequencies to verify its transmission of digital data with a low bit error rate

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## PROJECTS

**2D Platformer Video Game on Spartan-7 FPGA**

**November – December 2024**

- Designed a Super Mario Bros-inspired 2D platformer using the Xilinx Spartan-7 FPGA and the MicroBlaze processor. Developed key game components in SystemVerilog, including accurate dynamic collision detection using color mapping for multiple levels, sound effects, advanced graphics, text graphics manipulation, and character status control (win/death). The game featured keyboard controls and optimized memory management due to the limited BRAM space in the FPGA

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## AWARDS & HONORS

**Recipient – KAUST Gifted Student Program (KGSP) Scholarship**

**April 2022 – Present**

- KGSP is a prestigious scholarship awarded by King Abdullah University of Science & Technology to a select group of Saudi students to pursue undergraduate degrees in STEM fields in the US

**Award Winner – K.Soumyanath Memorial Award**

**May 2022**

- K. Soumyanath memorial special award received at International Science and Engineering Fair for presenting my research project on communication systems clearly with understanding of its methodology

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## EXTRACURRICULARS

**Experienced Coordinator – Science, Technology, and Entrepreneurship Program (STEPs)**

**June – August 2025**

- Coordinated the first cohort of 120 students of STEP's, a competitive college preparatory program, through large-scale academic, cultural, and community-building events
- Led and mentored directly 11 students, providing guidance and leadership development

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## SKILLS

**Research, Technical:** OS Development, AI model training, Software-Defined Radio, Communication Systems, C/C++ & Python, SystemVerilog

**Language:** Arabic (Native), English (Fluent)