JOHN YOUKHANA

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EDUCATION

University of Illinois at Urbana-Champaign
Bachelor of Science in Electrical Engineering — Expected Graduation: May 2027
Relevant Coursework
(ECE 486) Control Systems | (ECE 483) Analog IC Design | (ECE 330) Power Circuits & Electromechanics
(ECE 340) Semiconductor Devices | (ECE 342) Electronic Circuits | (ECE 385) Digital Systems Laboratory
(ECE 329) Fields and Waves I | (ECE 310) Digital Signal Processing | (ECE 313) Probability in Engineering

Wilbur Wright College — GPA 3.7/4.0
Associate of Science in Electrical Engineering — Aug 2022 - May 2024

PROJECTS

Tetris on FPGA — Spring 2025
- Designed and implemented a fully functional Tetris game on Spartan-7 FPGA using System Verilog, integrating HDMI video output, USB keyboard input via MicroBlaze softcore processor, and audio playback via PWM signal generation
- Engineered game logic with real-time rendering of game environment, block spawning, collision detection, grid clearing. Leveraged VGA-to-HDMI IP, and ROM-based font/text systems to create an interactive game environment.

AC-DC Power Supply and Voltage Regulator — Fall 2025
- Developed a multi-stage AC-DC converter consisting of transformation, full bridge rectification, Filter stage, Regulation, and Amplification stages
- Designed to step down 120VAC to 25VAC. Converts and amplifies 25VAC to a stable and low noise ~9.5 DC voltage.

Horn Oscillator — Aug 2024 – Present
- Designed and tested the Horn oscillator PCB board using a 555 timer to generate a fixed frequency signal. Ensured reliable operation within constraints.
- Created schematics and PCB layout in KiCAD. Optimized trace routing and component placement for efficient operation.

Battery Charge Switch — Nov 2024 – Present
- Co-developed a battery charge switch with integrated MOSFETs and diodes to regulate current flow and reduce overheating risk during battery charging cycles.
- Assisted with schematics and PCB layout in KiCAD. Tested simulations in LTSpice to ensure proper functionality.

RELEVANT EXPERIENCE

Illini Solar Car — Champaign, IL
Electrical Team member — Aug 2024 - Present
- Collaborating with a team of students to design and develop high/low voltage systems, contributing to system integration and PCB board testing
- Designed and tested custom PCB's using KiCAD, conducted rigorous testing to ensure Board functionality and integrity, improving designs by refining layout and component choices.

City Colleges of Chicago — Chicago, IL
Engineering Tutor — Aug 2023 - May 2024
- Tutored various subjects such as Physics, Math, Engineering, and Computer science for the engineering department at Wilbur Wright College

SKILLS

Skills: Electronics Design | Amplifier Design | RTL design | PCB design | FPGA Programming | RTL Simulation/Debugging | System Integration
Tools: LTSpice | Xilinx Vivado | Git | MATLAB | Fusion 360 | KiCAD | Oscilloscope | Spectrum Analyzer
Languages: C/C++ | Python | Assembly | SystemVerilog | VHDL