

# VIKRANTH VAKATI



Computer engineering masters student with software development and electrical engineering experience. Passionate about exploring cutting-edge technologies in cyber-physical systems with a focus on IoT, web development, and power systems. Proven track record of developing systems with seamless data exchange, and dynamic web experiences.

## SKILLS

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**Languages and Tools:** JavaScript, React.js, Node.js, HTML5, Tailwind CSS, Python, OpenCV, C++, SQL, MATLAB

**Technical Skills:** Software Development, Circuit Development, Transmission Protocols

**Software:** Git, LabView, MultiSim, Figma, Wireshark, SolidWorks

**Operating Systems and Devices:** Windows, Unix, ESP, Raspberry Pi, Arduino, FPGA Boards

## PROJECTS

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### Automated Billiards Shot Timer | May 2023

- Built an automated billiards timer system using Python that displays the remaining time for each player
- Utilized OpenCV to track the motion of billiards balls on a table while filtering out noise
- Employed Kalman filtering techniques to reduce measurement noise and improve tracking accuracy
- Collaborated with billiards players to ensure that the system meets their needs while remaining compliant with tournament rules
- Optimized the system for accuracy and reliability by conducting extensive testing

### Optical Heart Rate Detection | Apr 2023

- Designed a non-invasive heart rate detection algorithm using MATLAB that measures heart rate from facial videos
- Utilized signal processing techniques to extract heart rate signals from video data
- Implemented machine learning algorithms to improve the accuracy and robustness of the algorithm
- Conducted extensive testing to optimize the algorithm for accuracy and reliability

### Farm Monitoring Network | Aug 2022

- Led a team of 3 to build an offline mesh network using ESP32 nodes monitoring conditions on farms
- Designed a custom circuit board to integrate pH, moisture, temperature, and macronutrient sensors
- Programmed each node to take sensor input periodically and send the collected data to a server node
- Developed a custom web interface that displays real-time information, providing farmers with valuable insights and decision making tools
- Optimized the system for reliability, and performance, resulting in a system that is dependable in rural areas with limited internet connectivity

## EXPERIENCE

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### Wiring Technician | Delta Magnetics and Controls | Jan 2021 - Jan 2023

- Conducted visual, point to point and operational testing on control panel systems to ensure functionality
- Designed and built test panels for functional testing
- Mentored new employees, which led to improved onboarding and productivity
- Maintained accurate wiring diagrams and schematics according to industry standards

## EDUCATION

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**Master of Science: Computer Engineering** | Wentworth Institute of Technology | Expected Dec 2023

**Bachelor of Science: Computer Engineering** | Wentworth Institute of Technology | 2022

### Relevant Coursework:

Cyber-Physical Systems, Embedded Systems, Industrial Controls, Robotics and Automation, Digital Signal Processing, Digital Image Processing, Operating Systems, Computer Architecture, Embedded Sensor Networks, Advanced Digital Circuit Design, Computer Networks, Analog Circuit Design