

# SAAD RANA



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saadrana.co

## EDUCATION

**2016 – 2020** MEng Engineering Science – 2.1  
University of Oxford, Keble College

Software: Algorithms & Data Structures, OOP, Operating Systems, Networks

Information: ML, Computer Vision, Robotics, Optimisation

**2014 – 2016** SQA Qualifications  
Hillpark Secondary School

Advanced Highers: Maths A, Physics A, Chemistry A

Highers: Computer Science A, English B, Biology A

## EXPERIENCE

**Aug – Sep 2020** Computer Vision Intern  
Arcangel Imaging

- Increased object detection and classification range of an AI powered camera.

**June 2020** Web Development Intern  
Modux

- Developed a login page using React and Flask, investigating interesting ways to securely login.
- Implemented a rhythmic password using the timings between each keystroke.
- An eigenfaces approach was used to implement melody detection as a form of memorable information.

## PROJECTS

**Personal Website - saadrana.co**

- Utilised React hooks to interface traditional javascript libraries with React such as GSAP & Fullpage.js
- Leveraged react-router-dom hooks to provide custom transition animations between specific pages

**Lensless Camera & Wavefront Sensor**

- Reconstructed images from a lensless diffuser-based camera using ML methods
- Trained a Siamese Network using PyTorch to classify aberrations detected on the lensless camera.

**To-do List Web App**

- Implemented React Context API, to centralise state and methods to avoid props drilling.
- Designed a REST API linked with MongoDB to deal with CRUD requests in Node.js.
- The React Context API was replaced by Redux after the introduction of Redux hooks.

**Modular CHP Control System**

- Designed a PID controller for a Combined Heat & Power Generator (CHP) to allow load tracking.
- Developed a scheduler to efficiently split the load amongst the CHPs minimising the fuel usage using non-linear programming.

**AR Overlay**

- Projected video content on an image detected from a camera feed using OpenCV.

## CERTIFICATIONS

**FreeCodeCamp**

JavaScript Algorithms & Data Structures  
Responsive Web Design

**University of Oxford**

CUDA Programming

## SKILLS

Python      JavaScript      React  
HTML/SASS      Figma  
PyTorch

## ACTIVITIES



VALORANT, Genshin Impact



Learning Spanish



Investing in the stock market

## LANGUAGES

English      Native  
Spanish      Elementary