

# Russel Shawn Dsouza

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## Skills

### Programming Languages

Python, MATLAB, C, JavaScript, Verilog, L<sup>A</sup>T<sub>E</sub>X

### Deep Learning Frameworks & Libraries

PyTorch, ignite, torchvision, torchtext, scikit-learn

### Image Processing Libraries

scikit-image, OpenCV, Pillow

### Data Mining Libraries

Google BigQuery, SQL, requests, BeautifulSoup, selenium, scrapy

### Applications

Xilinx Vivado, Microsoft Azure, Keil  $\mu$ Vision, GitHub

### Hardware

Raspberry Pi, Arduino, Xilinx Spartan FPGA

### Web & App Development

Django, React, React Native for iOS and Android, JavaScript, HTML, SCSS

### Operating Systems

Linux, MacOS, Windows

## Completed Projects

### Computational Histopathology

Segmentation of nuclei in histopathology images of kidney tissues to improve the automated diagnosis of cancer using deep convolutional neural networks.

### Face detection and recognition

Implementing real time face detection and recognition using OpenCV, scikit-learn and dlib on a Raspberry Pi.

### Detecting Ponzi schemes in Ethereum smart-contracts

Using semi-supervised learning on raw bytecode of smart contracts deployed on the Ethereum blockchain mined using Google BigQuery.

### Fake news classifier

Classifying news articles on a scale from true to fake to help prevent the spread of fake news using natural language processing.

### Spell checker

A command line based spell checker written in pure C.

### Elections on Blockchain

Using solidity and Microsoft Azure Blockchain workbench for secure, reliable elections deployed on the blockchain.

### Space-time Adaptive Processing in radars

Studying Radar Signal Processing and implementing Space-time Adaptive Processing(STAP) in a radar in MATLAB.

## Ongoing Projects

### Emotion Recognition

Using EEG, ECG, GSR, SKT signals to recognize emotions to help people suffering from PTSD, anxiety and Autism Spectrum Disorder(ASD)

### Recursion Cell Image Segmentation

Using deep learning to eliminate experimental noise from biological images.

### Ancient Japanese Text Recognition

Using CNNs to localize and classify cursive Kuzushiji text.

## Education

National Institute of Technology, Karnataka, India 2017-2021(expected)  
*B.Tech in Electronics and Communications Engineering*

Little Rock Indian School, Karnataka, India 2004-2017  
*K-12*

## Course Work

Digital signal processing in Python, Digital system design in Verilog, Embedded system design, Microprocessors, Control Sytems, Numerical Analysis, Data structures and algorithms, Digital & Analog electronics, Digital & Analog communication

## Awards and Honors

School topper in Math(99/100) and English(98/100) in Grade 12

Top 1%(CGPA 10.0) in India in Grade 10

## Experience

### Research Intern

May 2019 - July 2019

*Under Dr. Shyam Lal - NITK, India*

Worked on building deep learning models for the segmentation of H&E stained histopathology images of kidney tissues to improve the automated diagnosis of kidney cancer.

### Frontend Engineer

August 2018 - April 2019

*IRIS, NITK (Official student management portal)*

Worked on building the frontend for the official student management portal with more than five thousand active daily users including students, faculty, administrators and alumni.

Mentored a freshman intern on frontend testing using JavaScript - Winter 2018.

### Python Developer

May 2018 - July 2018

*Pinnacle Media (Local Media Firm)*

Worked on implementing real time face detection and recognition using OpenCV, dlib and scikit-learn on a Raspberry Pi.

## Interests

Medical imaging, computer vision, cybernetics, augmented and virtual reality