




# Russel Shawn Dsouza

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## Skills

### Programming languages

Python, MATLAB, Rust, C, JavaScript, Verilog

### Deep learning

PyTorch, torchvision, NVIDIA-DALI, scikit-learn

### Image processing

OpenCV, scikit-image, PIL

### Data mining

Google BigQuery, SQL, requests, beautifulsoup

### Web/app development

Django, ReactJS, GatsbyJS

### Hardware

Xilinx Artix 7 FPGA, Raspberry Pi, Arduino

### Tools

git, Docker, Linux, Xilinx Vivado, L<sup>A</sup>T<sub>E</sub>X

## Notable Projects

### Classifying components of handwritten Bengali

Jan 2020 - Present

Working on the Kaggle Bengali.AI Grapheme classification challenge using efficient models that train on single GPU systems.

### Computational histopathology

May 2019 - Present

Built a supervised learning based model in PyTorch to perform the segmentation of nuclei in H&E stained histopathology images of kidney tissues to detect kidney cancer.

### Brain tumour segmentation

Dec 2019

Built a supervised learning based model in PyTorch trained on a part of the BRATS dataset to segment brain tumour and surrounding edema.

### Emotion recognition

Aug 2019 - Present

Working on designing an embedded system to recognize emotions in real-time using physiological signals with deep learning.

### Detecting Ponzi schemes in Ethereum smart-contracts

Aug 2019 - Sep 2019

Used a semi-supervised learning based model, built using PyTorch and torchtext, on raw bytecode of Ethereum smart contracts mined using Google BigQuery.

### Predicting truth level of news articles

Jul 2019 - Aug 2019

Built a classifier using PyTorch and torchtext to classify news articles into true, mostly true, half true, barely true, false and pants-fire.

### Spell checker

Oct 2018 - Nov 2018

Built a command line application to correct spelling errors in C.

### Space-time adaptive processing radar

Apr 2019 - May 2019

Presented a report on space-time adaptive processing and simulated STAP in a radar in MATLAB.

## Education

National Institute of Technology Karnataka, India B.Tech in Electronics and Communications Engineering	2017-2021(expected) CGPA: 8.7
Little Rock Indian School, Karnataka, India K-12	2004-2017

## Course Work

Digital signal processing in Python, Machine learning in neuroimaging, Digital system design in Verilog, Embedded system design, Microprocessors, Control Systems, Numerical Analysis, Data structures and algorithms, Digital & Analog communication, Analog electronics, Digital electronics & Computer Architecture

## 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 Assistant** Oct 2019 - Present  
Under Dr. Shyam Lal - NITK, India  
Working on the design and development of an automated kidney & colon cancer detection system from H&E stained histopathology images.

**Research Intern** May 2019 - Jul 2019  
Under Dr. Shyam Lal - NITK, India  
Worked on reproducing state-of-the-art deep learning architectures for the semantic segmentation of H&E stained histopathology images of kidney tissues to detect kidney cancer.

**Frontend Engineer** Aug 2018 - Apr 2019  
IRIS-NITK, India  
Worked on building the frontend for the official student management portal 'IRIS' with more than five thousand daily active 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, Manipal, India  
Worked on implementing real time face detection and recognition using open-cv, dlib and scikit-learn on a Raspberry Pi.

## Interests

Neuroscience, Computer Vision, Neuromorphic computing, Cybernetics, and Augmented Reality

Last updated: January 12, 2020

<https://github.com/rshwndsz/resume/blob/master/CV.pdf>