


# Russel Shawn Dsouza

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CONTACT INFORMATION	National Institute of Technology Karnataka (NITK) NH66, Srinivasnagar, Surathkal, Mangalore Karnataka, India 575025.	rshwndsz@gmail.com rshwndsz.github.io  rshwndsz
RESEARCH INTERESTS	Computer vision, Neuroscience, Augmented Reality, Low power computing	
EDUCATION	<b>National Institute of Technology Karnataka (NIT Karnataka)</b> Bachelor of Technology, Electronics and Communications Engineering	Jul 2017 – May 2021
PUBLICATIONS	Lal, S., <b>Dsouza, R.</b> , Maneesh, M., Kanfode, A., Kumar, A., Perayil, G., Alabhya, K., Chanchal, A.K. and Kini, J. “A Robust Method for Nuclei Segmentation of H&E Stained Histopathology Images.” 2020, 7th International Conference on Signal Processing and Integrated Networks (SPIN) (pp. 453–458). IEEE. DOI: 10.1109/SPIN48934.2020.9070874	
RESEARCH EXPERIENCE	<b>Winter Research Intern, Deep learning lab, NIT Karnataka</b> <b>Segmentation of nuclei in histopathology images of kidney, liver, bladder tissues</b> Mentored by Dr. Shyam Lal Dec 2019 – Feb 2020 <ul style="list-style-type: none"><li>– Worked on the segmentation and grading of kidney and liver cancer from histology images.</li><li>– Worked on the detection of Urothelial Carcinoma from whole slide images with average dimensions of 80000×50000</li><li>– Built an open-source repository benchmarking segmentation models on histopathology datasets</li><li>– Presented a report on various semantic and instance segmentation methods.</li></ul> <b>Summer Research Intern, Deep learning lab, NIT Karnataka</b> <b>Segmentation of nuclei in histopathology images of kidney tissues</b> Mentored by Dr. Shyam Lal May 2019 – Jul 2019 <ul style="list-style-type: none"><li>– Worked on the efficient implementation of image processing algorithms on large datasets</li><li>– Worked on reproducing the results of seminal papers in the field of automated histopathology.</li></ul>	
WORK EXPERIENCE	<b>Frontend Developer</b> <b>IRIS, NITK</b> Aug 2018 – Apr 2019 <ul style="list-style-type: none"><li>– Worked on building the frontend for the official student management portal for NITK — ‘IRIS’, which has more than five thousand daily active users including students, faculty, administrators, and alumni.</li><li>– Mentored a freshman intern on frontend testing in JavaScript.</li></ul> <b>Python Developer</b> <b>Pinnacle Media, Manipal</b> May 2018 – Jun 2018 <ul style="list-style-type: none"><li>– Built and deployed real-time face detection and recognition, using OpenCV, dlib, and scikit-learn, on a Raspberry Pi as a part of an ‘employee attendance’ system.</li></ul>	
SKILLS	<b>Languages:</b> C++, Python, MATLAB, Javascript, C, Rust, Verilog, ngSPICE <b>Frameworks and packages:</b> Pytorch, Keras, OpenCV, Scikit-learn, Numerical Python <b>Web Development:</b> ReactJS, ExpressJS, NodeJS, MongoDB, GraphQL <b>Hardware:</b> Raspberry Pi, Arduino, Xilinx Artix 7 FPGA <b>Natural languages:</b> English, Hindi, Kannada	

NOTABLE  
PROJECTS

***Melanoma Classification***

*Jun 2020 – Present*

- Working on building a model to detect skin cancer, specifically Melanoma, in images of skin lesions as a part of the SIIM-ISC Melanoma classification challenge on Kaggle.

***Brain Tumour Segmentation (BraTS)***

*Dec 2019*

- Reproduced state-of-the-art multi-class semantic segmentation models in Keras/TfV1 and trained them on a part of the BraTS dataset to segment brain tumour and the surrounding edema from MRI images.
- Achieved an IoU score of 0.81 on the obtained dataset.

***Detecting Ponzi schemes in Ethereum smart contracts***

*Aug 2019 – Sep 2019*

- Built a custom model using CNNs and stacked auto-encoders. The model was trained on the raw bytecode of Ethereum smart contracts mined from the Ethereum blockchain using Google BigQuery, publicly available Solidity source code of popular smart contracts, and a publicly available dataset of known Ponzi schemes.
- The model was built in under 48h as a part of a blockchain themed coding sprint.

***Predicting truth level of news articles***

*Jul 2019 – Aug 2019*

- Built a text classifier using a Bidirectional-LSTM. The model was trained on the Liar-Plus dataset to classify news articles into 6 different categories based on their truth level.

***Space Time Adaptive Processing Radar***

*Apr 2019*

- This project involved presenting a report on the current state of STAP in Radar Signal Processing.
- The report contained a MATLAB simulation of a radar implementing STAP.

RELEVANT  
COURSEWORK

Digital Signal Processing, Machine Learning for Neuroimaging  
Digital System Design, Statistical Analysis, Numerical Analysis  
Embedded System Design, Microprocessors, VLSI Design, Control Systems  
Data Structures & Algorithms, Digital Electronics & Computer Architecture