


Russel Shawn Dsouza

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	National Institute of Technology Karnataka (NIT Karnataka) Bachelor of Technology, Electronics and Communications Engineering <i>Jul 2017 – May 2021</i>	
PUBLICATIONS	Lal, S., Dsouza, R. , 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	Winter Research Intern, Deep learning lab, NIT Karnataka Segmentation of nuclei in histopathology images of kidney, liver, bladder tissues <i>Mentored by Dr. Shyam Lal</i> <i>Dec 2019 – Feb 2020</i> <ul style="list-style-type: none">– Worked on the segmentation and grading of kidney and liver cancer from histology images.– Worked on the detection of Urothelial Carcinoma from whole slide images with average dimensions of 80000×50000– Built an open-source repository benchmarking segmentation models on histopathology datasets– Presented a report on various semantic and instance segmentation methods. Summer Research Intern, Deep learning lab, NIT Karnataka Segmentation of nuclei in histopathology images of kidney tissues <i>Mentored by Dr. Shyam Lal</i> <i>May 2019 – Jul 2019</i> <ul style="list-style-type: none">– Worked on the efficient implementation of image processing algorithms on large datasets– Worked on reproducing the results of seminal papers in the field of automated histopathology.	
WORK EXPERIENCE	Frontend Developer IRIS, NITK <i>Aug 2018 – Apr 2019</i> <ul style="list-style-type: none">– 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.– Mentored a freshman intern on frontend testing in JavaScript. Python Developer Pinnacle Media, Manipal <i>May 2018 – Jun 2018</i> <ul style="list-style-type: none">– 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.	
SKILLS	Languages: C++, Python, MATLAB, Javascript, C, Rust, Verilog, ngSPICE Frameworks and packages: Pytorch, Keras, OpenCV, Scikit-learn, Numerical Python Web Development: ReactJS, ExpressJS, NodeJS, MongoDB, GraphQL Hardware: Raspberry Pi, Arduino, Xilinx Artix 7 FPGA Natural languages: English, Hindi, Kannada	

Satellite detection in images from low-cost telescopes

Jul 2020 – Present

- Working on the design and development of a model to detect orbiting objects in the geostationary ring, from sequences of consecutive frames imaging unknown portions of the sky, as a part of the ‘spotGEO’ competition by the European Space Agency (ESA).

Identifying Melanoma in images of skin lesions

Jun 2020 – Present

- Working on building an ensemble network of multiple detection models to accurately detect skin cancer, specifically Melanoma, in images of skin lesions as a part of the SIIM-ISC Melanoma classification challenge on Kaggle.

Image Denoising

July 2020

- Reproduced a very deep persistent memory network to perform image restoration by removing noise and predicting uncorrupted images.
- The model was trained on images from the Berkeley Segmentation Dataset (BSDS300) and tested on a modified version of the CIFAR10 dataset.

Segmentation of brain tumour in MRI images

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 tumours and surrounding edema from MRI images.

Detecting Ponzi schemes in smart contracts

Aug 2019 – Sep 2019

- Built a custom model to detect Ponzi smart contracts deployed on the Ethereum blockchain 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 deep-learning coding sprint.

Predicting truth level of news articles

Jul 2019 – Aug 2019

- Built a model to classify news articles into 6 different categories based on their truth level.
- The model was trained on the LIAR-PLUS dataset containing news articles and fact-checking justifications from trusted sources.

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.

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