# Kaushik S Kalmady

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## Education

2015–Present **Bachelors in Computer Science & Engg**, *National Institute of Technology Karnataka*, *CGPA* – ***9.65***.

2013–2015 **Karnataka Board Class 12**, *PoornaPrajna Pre-University College, Udupi*, *Percentage* – ***98.00***.

2012–2013 **KSEEB Class 10**, *St. Mary's English School, Kannarpady*, Udupi, *Percentage* – ***98.08***.

## Experience

Jun-Jul 2017 **Research Intern**, Optics and Microfluidics Instrumentation (OMI) Lab, IISc, Bangalore.

- *Guide:* Dr. Sai Siva Gorthi & Dr. Sai Subramanyam Gorthi
- *Field of exposure:* Deep Neural Networks, CNNs, Transfer Learning, SVMs, Restricted Boltzmann Machines
- *Project:*
  - Classification of White Blood Cell Images into respective types using Deep Learning methods.
  - Implemented various CNN models, investigated the effectiveness of features extracted from various pre-trained Deep Neural Networks and their fine-tuning to obtain high accuracy in classification of Leukemia cell lines.

## Selected Projects

Oct-Dec 2017 **Identification of Tuberculosis bacilli from a lamina image**.

- Convolution Neural Networks were used to train a model to classify an image as a bacilli or debris
- Regions of Interest obtained by connected component analysis are passed to the CNN to distinguish bacilli from debris

Nov 2017 **Implemention of Deficit Round Robin(DRR) in ns3**, *Course Project in Computer Networks*.

- Added the DRR queue discipline functionality to the open source software Network Simulator 3
- The contribution is currently under review by the ns3 community

Jan-Apr 2017 **Neural Probabilistic Models for Natural Language Processing**.

- The Song of Ice and Fire text was used to train a word2vec model and a Seq2seq chatbot in Tensorflow.
- Distributed representations of words and their syntactic and semantic qualities were investigated.

Dec 2017 **Rsasim - A pure python implementation of RSA**.

- Wrote a python package that demonstrates the functionality of RSA algorithm through an easy to use API
- RSA prime generation, primality tests, RSA encrytion, decryption, signing and verification were implemented

Jul 2017 **Restricted Boltzmann Machines for MNIST Digit Classification**.

- Analyzed efficiency of Latent Features obtained from RBMs for classification as compared to raw image data.
- Features extracted using scikit-learn in Python were used to train a Deep Belief Network on the MNIST digits data.

May 2017 **Neural Network based Image Segmentation for Skin Cancer Prediction**.

- Deep Learning project where the U-net CNN architecture was used to identify tumor cells in an image.
- Implementation was done using tf-unet package and Keras after pre-processing using numpy and PIL.

Oct-Nov 2017 **Read-it-later web app**, *Course Project in Database Management Systems*.

Built a read-it-later web app to save and bookmark news articles using Python's Flask and newspaper modules and a MySQL database. Search, archive, delete, custom queries were implemented in the web API. ChartJS was used for plots.

## Skills

Languages C/C++, Python, Matlab, Bash, HTML, CSS, Javascript

ML/WebDev Python Tensorflow/SkLearn, Python Django/Flask

## Achievements and Additional Work

Achievements

- Top 31 in the country in the National Level Mathematics Olympiad conducted by AMTI in 2014.
- JEE Main AIR 1089. KVPY Scholar. NTSE State Rank 3.
- National Champion - TCS Rural IT Quiz.

Extra Curricular Activities

- Executive Student Member - IEEE-NITK Student Branch
- Treasurer and Executive Member - Literary Stage and Debating Society, NITK
- Executive Member and Astro Committee Joint Convener - Amateur Astronomy Club, NITK