# Sai Deepesh POKALA

**Graduate Student at CentraleSupélec**

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## Education

- **CentraleSupélec** — Paris, France
  *Master of Science in Artificial Intelligence;* ***GPA:*** *16.5/20* — *Sep. 2019 – Present*
  - **Key Courses**: Machine Learning, Deep Learning, Optimization, Computer Vision, Big Data, Reinforcement Learning, Natural Language Processing
- **Indian Institute of Information Technology Design and Manufacturing** — Chennai, India
  *Bachelor of Technology in Electronics and Communication Engineering;* ***GPA:*** *8.37/10* — *Jul. 2015 – May 2019*
  - **Key Courses**: Digital Signal Processing, Linear Algebra, Digital Image Processing, Data Structures and Algorithms, Discrete Mathematics, Graph Theory

## Research Experience

- **INSERM** — Grenoble, France
  *Artificial Intelligence Research Intern* — *May 2020 - Oct 2020*
  - Worked on the development of an unsupervised Spiking Neural Network **(SNN)** with Spike-Timing Dependent Plasticity **(STDP)** for automatic classification of animal vocalizations.
  - Encoded raw analog audio into discrete spike trains with 'time-to-first-spike' encoding.
  - Implemented a Low-Threshold-Spiking **(LTS)** Neuron model to mimic the activity of biological neurons by introducing a temporal dimension to the activation of neurons.
  - Implemented the **STDP** learning rule to enhance learning by updating the synaptic weights of the network.
- **INSERM** — Grenoble, France
  *Research Intern* — *May 2018 - Oct. 2018*
  - Analyzed minipig vocalization data and attempted to cluster them in order to facilitate mapping with cortical activity; critical for the development of a Brain-Computer Interface (BCI).
  - Coded functions to successfully implement clustering algorithms like PCA and t-SNE using MATLAB.
  - **Techniques Used**: Spectrogram Analysis, **Principal Component Analysis, t-SNE**

## Projects

- **Aspect-Based Sentiment Analysis**
  - Implemented a classifier using a dense Neural Network with **dropout** to predict aspect-based polarities of opinions in sentences (**positive, negative and neutral**) and achieved an accuracy of **0.85**.
  - **Techniques Used**: transformers **(BERT)**, lemmatization, POS tagging
- **Pedestrian Bounding Box Detection**
  - Used classical Computer Vision methods to detect pedestrians from 684 different frames of a video.
  - **Techniques Used**: Gaussian Smoothing, Canny Edge Detection, Background Subtraction, Dilation, Opening and Contour Detection
- **Eat Cheese - Deep Reinforcement Learning**
  - Built an agent that maximizes the amount of cheese it collects on a 10x10 grid in a give period of time.
  - Compared the performances of two algorithms - one implemented with a fully connected network and another with a Convolutional Neural Network (CNN).
  - **Techniques Used**: Deep Q-Networks **(DQN)**, Convolutional Neural Networks **(CNN)**

## Programming Skills

- **Languages**: Python, C, C++, MATLAB
- **Technologies**: AWS, Hadoop, Spark
- **Libraries**: numpy, scipy, spacy, NLTK, scikit-learn, pandas, PyTorch, TensorFlow, Keras, PySpark

## Languages

- English - Bilingual Proficiency (TOEFL iBT 104/120)
- French - Intermediate Proficiency (A2 CEFR)
- Telugu - Native Language
- Hindi - Bilingual Proficiency

## Academic Achievements

- Secured 976/1000 and was among the 'top 1 percent' of the Andhra Pradesh Board Examination 2015 in India. Was offered a science scholarship by the Board of Intermediate Education, AP.
- Was among the 'top 1 percent' of the 1.6 million students who took the prestigious and highly competitive JEE Main exam (2015) in India.