Yash Bonde

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EXPERIENCE

Freelance Machine Learning Engineer — September, 2017 - Present

Some of the projects are:

- Wrote a high volume video analysis tool, complete package was **API service** to an MS Azure VM which did the major processing using custom and pertained models from MS Azure and Google Cloud Platform stack.
- Designed **Audio Segmentation Tool** which could segment input audio and return relevant parts, trained and tested on call centre telephonic conversations.

Summer Intern, Kaaenaat; Bengaluru — April, 2018 - October, 2018

- Upgradation of Kount, a product which resulted in improved results by performing live traffic analysis like **Dynamic Trajectory Clustering** and **Anomaly Detection** by looking at raw footage using machine learning, was implemented on an embedded device for on-the-edge application.
- Designing and making of an in-house application for faster **Image Segmentation** compared to classical methods.
- Worked with team building ADAS for 2-wheelers on image stabilisation, orientation and object tracking.

Research Intern, Connecticus Technologies; Pune — May, 2017 - July, 2017

- Worked on Connecticus cognitive platform NESSA to develop machine learning based approach to making a FAQ module.
- Implemented **Facebook's Memory Networks** and a variety of **NLP** tasks such as POS tagging, stemming and lemmatisation of language.

Summer Intern, Mastersoft E.R.P. Solutions; Nagpur — May, 2016 - July, 2016

- Designing and implementation of **Business Intelligence Toolkit** which could be plugged in with existing product to generate a variety of graphical representations of dataset.
- Plugged python with javascript frontend to create interactive plots.

Freelance Graphics Designer — May, 2016 - Present

- Projects done and sold include corporate decks, startup logos, graphic designs for stationary, received excellent reviews for my work ethic, creativity and communication skills.

EXTRA-CURRICULAR

Placement Convener, NIT Raipur; NIT Raipur — July, 2017 - Present

- Responsible for placement procedures of various companies that come to visit for campus recruitment.

Head-Coordinator, The Entrepreneurship Cell; NIT Raipur — April, 2016 - Present

- Part of a team which conducted E-summit '16, '17 and '18. Worked in marketing, technical and graphics domain.

PROJECTS

FreeCiv Environment — October, 2018 (Open-Source)

- Started an open-source initiative to write python bindings for FreeCiv 3.1 a popular online multiplayer turn-based strategy game similar to Civilizations 2. Built the most difficult learning environment and closest one to the real world, solo.
- Alpha version released can train agents based on action replays.

Stock Market Agent — October - December, 2018

- Designed a Reinforcement Learning agent which is capable of performing volumetric trading by determining both the actions and trade volume for any particular stock. Algorithms used are Deep Q-Networks (DQN), Double-DQN and Duelling-DQN and custom models capable of both discrete and continuous value generation.

Implementation of Research Papers — June 2017 - Present

- Implementation of Transformer Network from '**Attention is all you need**', trained and tested on toy datasets. This architecture introduces new methods for sequential data processing. ***(August, 2018)***
- Trained **Generative Adversarial Networks** (GANs), Deep Convolutional GANs and Conditional GANs to generate fake images. ***(July, 2018)***
- **Differentiable Neural Computer** is architecture that simulates a computer where a neural networks is processor while a memory matrix acts like RAM. It is inspired from neurology of human brain and uses methods like 'temporal links' for read write operations to the memory. ***(January, 2018)***
- **Facebook's Memory Networks** uses an external memory matrix to store information using attention based algorithms, results in improved results in situations involving longer sequences. ***(June, 2017)***

Reinforcement Learning Agents — June - September, 2018

- Trained RL models on **OpenAI Gym** environments such as LunarLander, Atari Breakout and **VizDoom**, a Doom game environment.
- Algorithms used for training were **Actor Critic** (AC, A2C, A3C) and **Deep Q-Networks** (DQN, Double-DQN, Duelling-DQN).

Indian Sign Language Converter — October, 2017 - March, 2018 (TI-IICDC 2017)

- Worked with a **team of 5** to design a wearable glove for deaf and mute users of Indian Sign Language, which is difficult because it uses two hands instead of one in German and American and so existing solutions do not work. Product designed as a part of Texas Instrument's India Innovation Challenge Design Contest (TI-IICDC 2017).
- Wrote **Scorpion** (Open Source), **custom C++ package** to perform neural network inference on Texas Instruments MSP430 microcontroller. The requirements rendered available packages useless because of extremely low memory and processing power on the device.

Chatbots using Neural Networks — May - September, 2017

- Made chatbots capable of conversational and non-conversational interactions. Used multiple algorithms such as tf-idf vectoriser to neural networks to generate output sequences.
- Could do basic text analytics like determining sentiments, performing keyword detection and part-of-speech tagging using conventional statistical methods and machine learning.

WallStreet — September - October, 2016

- Designed a virtual stock market game in which an AI competed with players to increase the difficulty level of the game.

EDUCATION

National Institute of Technology, Raipur, India: (July, 2015 - May, 2019)

Bachelors of Technology (B.Tech.): Electronics and Telecommunication Engineering

CGPA: 7.8/10

SKILLS AND TECHNOLOGIES

Languages and tools: C, C++, Python, Matlab, LaTeX, Git, HTML, CSS, JS, LaTeX

Machine Learning: Reinforcement Learning, Supervised Learning, Unsupervised learning

Platforms: AWS, GCP, MS Azure

MISC.

Finalist in Microsoft India Artificial Intelligence Challenge 2018 (MSAIC 2018)

Regular blogger, published in Towards Data Science and Data Driven Investor