

Akash Palrecha

AI Lead, Pixxel



28 April, 1998



akash@pixxel.co.in



+91 9879990466



akashpalrecha.me
github.com/akashpalrecha
linkedin.com/in/akashpalrecha

Education

MSc. (HONS) Mathematics, BITS
Pilani | 2017-21 | GPA:7.34/10
Class XII
Ryan Intl. ISC | 2015 | 87 %
Class X
Ryan Intl. ICSE | 2013 | 90 %

Skills

Languages: Python, Java, C, Basics of
SQL, Matlab
Deep Learning : PyTorch, FastAI,
Sklearn, NumPy, Matplotlib, Pandas,
basics of Tensorflow, Deployment
Cloud : AWS, GCP (Managing Deep
Learning VMs, Notebooks, etc)
WebDev : HTML, CSS, JS(basic), Flask

Courses, MOOCs –

Relevant Courses: Neural Networks
and Fuzzy Logic, Machine Learning,
Object Oriented Programming,
Numerical Analysis, Graphs and
Networks, Optimization, Probability
and statistics, Maths-1,2,3.
Online Courses: FastAI :V2, V3, Part 1
and 2. Stanford: CS231n (90%).
Coursera: Introduction To Machine
Learning. Kaggle: Data visualization,
Google BigQuery
Extra-Curriculars: Drummer @ Music
Club, BITS. Fest-ticketing Manager @
Department of Live Events, BITS. VP
Marketing @ AIESEC in Surat (2016)

About Me: I dropped a year after
school to explore myself. I also
dropped my dual B.E EEE degree in
my second year to better focus
full-time on AI/DL. I like putting my
big troubles first on my to-do list, not
under the rug. AIESEC and Music
Club, though not apparent, are the
most important parts of this CV: they
have built the foundation for my work
ethic. Jeremy Howard(FastAI) is my
role model.
My Big Trouble: Making AI Accessible

Work Experience and Internships

- Since Feb'19 **AI Lead** Pixxel, Bangalore
Recruit and manage AI Team. Led teams for: road detection,
land cover and crop classification, etc. Implemented Conditional
GAN+Self Attention+Perceptual Loss Model for road segmentation.
Handled creation/labelling for the first dataset for segmenting Indian
Roads and internal data pre-processing tools.
- Sep'18-Feb'19 **AI Researcher** Pixxel, Bangalore
During Training Period: read latest CV research papers, became com-
fortable with cloud (AWS,GCP). Processed multiple satellite datasets,
used LinkNet model for Road Segmentation.
- Since Jan'20 **Teaching Assistant: Neural Networks and Fuzzy Logic** BITS Pilani
Assist students with final "Research Paper Implementation" Project.

Research

- Since Dec'19 **Modification to Batchnorm that eliminates mean and variance param-
eters and gives comparable performance** Ongoing, Independent
Currently running experiments with common architectures (Resnets,
VGGNet, Inception, etc.) with a modified Batchnorm layer and stan-
dard benchmark datasets for classification (Imagenet, CIFAR10, etc.)
- Since Jan'20 **Classification using deep models+K query images** Ongoing, Independent
Working on a new method for K-shot classification using query im-
ages without requiring to retrain the model. Hypothesis: Can increase
K arbitrarily to increase confidence. Currently running experiments.
- Since Jan'20 **PCA: Analysis of Accuracy VS Speed with FP16 precision on GPUs**
Ongoing, with Dr. Rajesh Kumar, Assistant Professor, Mathematics, BITS Pilani
This is a study oriented project course spanning the current semester.

Projects

- Nov'19 **Lookahead Optimizer Analysis** GitHub
Replicated Geoffrey Hinton's Lookahead Optimizer paper to achieve
the lowest validation accuracy using Lookahead+SGD optimizer for all
CIFAR10, CIFAR100 and Imagenette(Subset of Imagenet) datasets.
Achieved identical results with Lookahead+SGD+OneCycle+Mixup.
- '19-'20 **Kaggle Competitions** GitHub-1, GitHub-2
Human Protein Atlas Image Classification: 4 Channel, 29 classes, Ac-
curacy: 88%, fbeta:0.412. Used:4-Channel resnet34, Stratification
Toxic Comments Classification: 6 Classes, Accuracy:99.26%, ROC-
AUC:98.7%. Used: FastAI's ULMFIT Approach
- Nov'19 **Java-ML** GitHub
Independently implemented a modular, completely extendable neural
network library in Java from scratch with PyTorch-like interface with-
out using any third-party libraries. Implemented: Basic AUTOGRAD,
initialization(Kaiming He, Gaussian, Random), Activation funcs:relu,
sigmoid, tanh, tansigmoid, etc, Matrix ops, optimizers, loss funcs.

Achievements

- Aug'19 **W&B Draught Detection Challenge**
#1 on leaderboard. 76.59% val acc. (Satellite Imagery, Classifica-
tion)
- Dec'19 **Published on Matplotlib's Official Blog**
An Inquiry Into Matplotlib's Figures: 100,000 organic reach on Twit-
ter
- School **Olympiads(National), Macmillan(National, percentile awarded)**
GOLD Medals won at NCO(2nd, National) & Macmillan Science, Math,
Computers, English (all top 1%)