

# Akshay Bhat

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## EDUCATION

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### NATIONAL INSTITUTE OF TECHNOLOGY KARNATAKA

Bachelor of Technology in Mechanical Engineering, 2019 – 2023

## EXPERIENCE

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### MACHINE LEARNING RESEARCH VOLUNTEER | Unify

Aug 2023 – Sep 2023

- Implemented **Audio Spectrogram transformer** which transforms audio into spectrogram and runs image classification.
- Implemented **torch mobile** support for Ivy's proprietary product autotuner.
- Implemented and optimized the repnet model for mobile devices.

### MACHINE LEARNING RESEARCH INTERN | NITK

May 2022 – Aug 2022

- Interned at The Healthcare Analytics and Language Engineering lab, where I implemented a domain-specific pre-trained language model **BERT** for classifying self-reporting tweets as potential COVID-19 cases.
- Conducted experiments with various Hugging Face transformer models on a dataset comprising over 18,000 tweets, addressing data imbalance through oversampling and augmentation techniques.

## PROJECTS

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*Note: All these projects are interdependent and are marked in red*

### BLOGGER | NextJs, TailwindCSS, Prisma, Axios, clerk, **gptforme**, Zod, recoil, **clowder**

- Developed blogger, a Next.js **blogging web app** for seamless article creation using markdown.
- Integrated **AI auto-completion** using **gptforme** in the markdown editor.
- Utilized Prisma and PlanetScale for data storage with zod form validation.
- Managed admin state efficiently with recoil and employed tailwind for styling.
- Optimized data retrieval with axios and hosted using **clowder**
- Automated continuous testing using Jest and github **workflow**

### MICRONET | Numpy, Cupy, **clowder**

- Developed a **Neural Network library from scratch** using cupy with autograd for gradient tracing.
- Applied the library to build a classifier for fashion images, training on a dataset with 60,000+ points.
- Automated unit tests using jenkins which is deployed using **clowder**

### GPTFORME | React, Flask, **MicroNet**, **clowder**, TailwindCSS, clerk, redis, redux

- Built an **AI chat app** with React.js frontend and Flask backend.
- Implemented **gpt2 from scratch** using **MicroNet** with openai's gpt2 weights.
- Styled the app with tailwindcss with user session management using redis and redux.
- Deployed frontend on Vercel and backend on Google Cloud Platform using **clowder**.

### CLOWDER | Terraform, GKE, GCP, Jenkins, Ansible

- Automated Google Compute Engine creation with Terraform and server configuration with Ansible.
- Containerized applications with Docker and deployed on Google Kubernetes Engine.
- Deployed jenkins on the google computation engine to automate the above workflow for continuous deployment.

## Technical Skills

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**Libraries:** Pytorch, Tensorflow, Jax, pandas, NumPy

**Languages:** Python, JavaScript, TypeScript, SQL, HTML/CSS, C++

**Web-Dev:** React.Js, NextJS, Node.JS, Express, Flask, redux, recoil, Vite, ThreeJS, GraphQL

**Database:** MySQL, MongoDB, Redis, Firebase

**Testing:** Jenkins, Jest, python-unittest

**Tools:** Git, Linux, Docker, Vim, Blender

**Cloud:** Terraform, Google Cloud platform, Google Kubernetes Engine, Ansible

***Extracurricular activities***

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**MCN Fellow-2022:** Taught nearly 30 students who come from poor backgrounds and led a drive for donating books and clothes to orphanages and old age homes

**Interests:** Anime, Gym