Vinay Kudari

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Education

- **University at Buffalo [3.95/4.0 GPA]** — Buffalo, NY
  Master of Science in Computer Science (AI/ML Specialization) — *Sep 2021 - Present*
  Courses: *Data Structure & Algorithms, Computer Vision, NLP, Deep Learning, Big Data Systems, Reinforcement Learning*
  Research: *Working at A2IL lab on projects related to NLP and CVIP, advised by Prof. David Doermann*

- **National Institute of Technology, Durgapur [3.3/4.0 GPA]** — West Bengal, India
  Bachelor of Technology in Computer Science and Engineering — *July 2014 - May 2018*
  Courses: *Operating Systems, Computer Architecture, Networking, Database Management Systems, Compilers, Digital Image Processing*
  Thesis: *Gender Classification using CNN advised by Dr. Dakshina Ranjan Kisku*

Relevant Skills

Python, SQL, JAVA, Django, Flask, PyTorch, PySpark, Docker, K8s, Git, NumPy, OpenCV, Pandas, GCP, AWS

Experience [3.4 yrs]

- **Sony (Playstation) [3 mon]** — San Francisco, CA
  Software Development Intern | ***java, spring, kafka, grafana, grpc, no-sql, cassandre*** — *May 2022 - Present*
  - Working on a publisher service which publishes hints to the online PS5 users dynamically based on the game context
  - Porting monolith news publisher service into micro services using gRPC based custom built framework
  - Building grafana analytical dashboards to visualize service performance charts derived from over 100M active users

- **Brave Orbit [1.6 yrs]** — (Remote) Capetown, South Africa
  Full Stack Developer | ***python, django, flutter, pytest, redis, celery, gcp, k8s*** — *Jan 2020 - Aug 2021*
  - Developed a cross-platform app using BLoC pattern, implemented database, network and state management layers
  - Engineered HIPAA compliant scalable async push notification service for medication reminder application
  - Developed a task scheduler for clinical surveys that delivers email, SMS alerts and gathers response on a recurring basis
  - Developed a ERP system, custom features such as multi-product substitutions, combo-products are developed
  - Kubernetes CI/CD workflows were setup to automatically test, build and deploy backend services on cloud
  - Developed automated testing pipelines and improved test coverage for both frontend and backend services

- **Accenture [1.3 yrs]** — Bangalore, India
  Big Data Developer | ***python, redshift, pyspark, pandas, aws*** — *Sep 2018 - Dec 2019*
  - Time series analysis was conducted on drug assay data to identify raw materials that effect the drug quality
  - Designed ETL data validation pipeline using micro service architecture; Manual testing resources were cut by 70%
  - PL/SQL procedures were developed to generate parent child hierarchies using temporal drug life cycle data

- **Visakhapatnam Port Trust [3 mon]** — Visakhapatnam, India
  Computer Vision Intern | ***opencv, video processing, scikit-learn*** — *May 2017 - July 2017*
  - Extracted frames from surveillance cameras; merged them based on SIFT keypoints and RANSAC; trained a SVM to detect cargo type and estimate lease area; developed a motion detector model to identify suspicious movements

Selected Projects

- **Recommender system using graph neural networks | gnn, deep-learning**: Developed an inductive matrix completion model using user-item node embeddings pretrained on movie reviews; 1-hop sub graphs around user, item pairs are generated and passed to MLP regressor to forecast ratings
- **Computer vision based vehicle damage detector | backend, rest-api, django, pytorch**: Trained an instance segmentation model using detectron2 to detect damages; assigned a health score based on relative area of damage
- **Unordered image stitching and deghosting | image matching, data structures**: Estimated approximate overlap area by minimum variance technique on binarized images; stitched images based on binary tree model; removed deghosting from the overlap areas by selecting regions based on minimum local gradients
- **Information extraction as seq2seq task | transformer, text2text**: Transformed labelled structured data into text; finetuned T5 model to generate text and extracted entities using REGEX
- **Microservice based deeplearning inference pipeline | docker, cloud-run, automation**: Created face mask dataset and trained a multiclass classification network; Exposed ResNet model in a docker container; setup automated CI/CD pipeline to build and deploy as serverless REST API
- **Reinforcement learning based crypto trading bot | time series, rl**: Designed a continuous action space OpenAI gym environment to handle trading data; LSTM with CNN was used as function approximator to actor critic algorithms
- **Custom built autonomous car | full-stack, mobile-app, vision, webrtc**: Assembled the car with Jetson Nano; Cross-platform mobile app was build to control the bot; Implemented WebSockets to exchange sensor data and WebRTC protocol to stream video to the controller; Applying RL/DL algorithms to make it autonomous

Publications

- **Time series analysis of civil unrest using Graph Neural Networks @ COLING 2022 (In Review)**: