Jagadish Krishnamoorthy

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- Software Engineer with 15 years of experience.
- Open-source contributor to various AI projects
  Pytorch, DeepSpeed, ONNX RT; Blockchain projects,;
  Google Coreboot project etc.
- Employed with **AMD** at present.
- Huge believer in open source projects. Contributing to open source projects in personal and professional experience on a day to day basis.
- https://jaglinux.github.io/

AMD, Santa Clara 2018 – present

AI Frameworks

- Open source Contributor to Pytorch, DeepSpeed, ONNX RT and other AI frameworks and models GitHub projects from AMD / ROCm org.
  https://github.com/jagadish-amd/
  https://github.com/jaglinux/
- Working on Pytorch datatype such as fp32, tf32, ocp fp8, mx fp8, mx fp4 scaling, scaled_mm gemm, matmul gemm kernels, integration with BlasLT.
- Implemented Pytorch Group Gemm operator / Mixture of Experts, using composable kernel library.
  https://github.com/pytorch/pytorch/pull/166334
  Handled 2d 2d, 2d 3d, 3d 2d, 3d 3d cases, group gemm for loop blaslt mm case, worked on improving performance, fp8 scaled group gemm
- Working on torch.cuda, distributed, c10d modules, integration with ROCm software stack.
- Single/multi GPUs training and inference using Pytorch DDP/DP, DeepSpeed libraries.
- Maintenance of Upstream Pytorch, release Pytorch branches, ROCm fork Pytorch branches.https://github.com/ROCm/pytorch
- Pytorch DDP training, RCCL / NCCL communications, AI models such as GPT, Bert, Cifar and transformer based models.
- GPU architecture, memory, streams, CUDA/HIP working knowledge.

PyTorch Metrics Tool Development

Grafana dashboard, SQL, Github Workflow Action, Python helper script to produce metrics comparing ROCm vs Cuda.

GPU Cloud Webapp Backend, Infra developer (AMD Accelerator Cloud)

- Multi node, multi GPU AI / ML workload distributed training using PyTorch, Composer, HuggingFace.
- Pytorch DDP training, RCCL / NCCL communications, MPI, OpenMP
- Slurm (sbatch, salloc) usage for HPC jobs, multi node docker.
- Python Django (API server), SQL, MariaDB, Redis DB, Celery, Websocket Flask and Tornado framework, WSGI server , Sentry and Flower tools.
- Django REST framework, Django models, ORM, queryset, filter.
- Async tasks, scheduling, scaling on Celery, Redis broker.
- Amazon Cloud infra development (EC2, Storage, S3), Supervisor to handle program execution, Load Balancer, Nginix, Jenkins, Ansible, Cobbler.
- Dockers, Kubernetes (Deployment, Pods, GPU DaemonSet, RBAC)

Devops/ Infrastructure
- Designed and coded ROCm libraries CI setup in Docker environment.
- Testing of CI code moved to Kubernetes environment with 1:1 GPU test mapping.
- Involved in design and coding of Python based backend development of scalable application. The application runs multiple parallel workloads in the form of docker containers on a Kubernetes cluster. Rabbit MQ monitoring is used for Kubernetes scaling.

Intel, Santa Clara   2013 – 2018

Open source Contributor to Google Coreboot and EC, Linux Kernel projects from Intel
[Chromium.org tree](#)
[Coreboot.org tree](#)

Samsung, Bangalore
2008 – 2012
- Samsung Galaxy S3 based project (ICS to JB upgrade): Porting SVNET2 based drivers for DPRAM
- Samsung Galaxy S3 based project (ICS): Handling HSIC drivers AP side.
- Samsung Galaxy S2 (ICS): Porting ICS (Ice Cream Sandwich) / LINUX 3.0 on GalaxyS2.

Blockchain projects
- Programming: Solidity, Vyper
- Frameworks: Web3.py, Brownie, Foundry, Hardhat, Truffle.
- **Participated in Eth Global Hackathon** (Feb2022) by Polygon and built decentralized Twitter.

  The project won the shared pool prize by Polygon.
  Check the demo video at https://showcase.ethglobal.com/roadtoweb3/detweet Dapp live at Polygon mainnet https://detweet.surge.sh/

  Smart contract code at [https://github.com/jaglinux/de- tweet/blob/master/packages/hardhat/contracts/ YourContract.sol](https://github.com/jaglinux/de-tweet/blob/master/packages/hardhat/contracts/YourContract.sol)
  Includes governance model to ban users, NFT minting of tweet on chain etc. Dapp uses the Graph protocol to index the smart contract events. https://thegraph.com/hosted-service/subgraph/jaglinux/detweet1
- Web3.py development, Smart contract deployment using Eth Brownie, running geth node
- https://github.com/jaglinux/smart_contracts on Remix IDE, interaction with metamak and testing on various Ethereum tests and main net.
- https://github.com/jaglinux/rarity_army_adventure
- Building army on top of rarity game by Andre Cronje on Fantom Network. Task is to create army of all summoners and use it to adventure in a group.
- Building options(call) on NFT, usage of keepers for keyless transactions.
- Active interest in Ethereum L2 solutions, MEV, Defi and various other smart contract and blockchain concepts (through podcasts, twitter threads etc)
- Deploying Upgradeable contracts using OpenZeppelin Transparent and UUPS Proxy.

Personal projects
- Developed a mobile application called FACETool for Samsung BADA platform. The application had received 100000 downloads. FACETool is an image application based on Face recognition.

Education/Degree

- MS (Embedded System)   2007

   Manipal Centre for Information Science / Manipal University, India

- B.E (Electricals and Electronics)   2005

   Visvesvaraya Technological University, Bangalore India