




# Pratiksha Pai

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## EDUCATION

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<b>Masters Electrical and Computer Engineering (<i>Machine Learning</i>)</b>	CGPA: 3.93/4.0
Georgia Institute of Technology, Atlanta, GA	Aug 2022 - Present
<b>Bachelors Electrical Engineering (<i>Minor in Computer Engineering</i>)</b>	CGPA: 9.03/10.0
NIT, Karnataka, India	Aug 2015 - May 2019

## EXPERIENCE

- **Mathworks** Natick, US  
*Engineering Development Group Intern* June 2023 - August 2023  
**Cloud Install Manager - Development & Automation** | Go, Docker, Perforce
  - Led multi-team effort to develop Cloud Install Manager, automating workflows, cutting setup from 2+ hours to 30s.
  - Implemented a parallel execution engine for 17+ packages with Go's concurrency, reducing build time by 70%.
- **Georgia Institute of Technology** Atlanta, US  
*Graduate Research Assistant* Jan 2023 - Present  
**Advanced Real-Time Human Motion Tracking** | CV2, Mediapipe, Deeplabcut, OpenBCI
  - Fine-tuned & open-sourced DeepLabCut EfficientNet with 1500+ frames, adapting to human motion tracking from animals
  - Boosted video capture rate from 120 to 1000+ FPS at WUXGA, via a modular, multi-threaded system.
  - Created a toolkit with CV2, Google MediaPipe, enabling real-time behavioral analytics, higher-dimensional mappings
- **Infoworks.io** Bangalore, India  
*Senior Software Engineer* Jan 2021 - July 2022  
Received the **Be The CEO award for 2021 among 100+ developers** for exceptional ownership skills.  
**Horizontal Pod Autoscaling for MongoDB on Kubernetes** | Kubernetes, GCR, MongoDB, Bash, Git Actions
  - Led Kubernetes containerization for MongoDB and 5 core services, cutting system startup latency from 90s to 4s.
  - Automated MongoDB's transition to a resilient 3 node replicaset, interfacing with the 4+ core services in production
  - Attained a max failover time of 4s and replication latency of 0.47s, enhancing database reliability in production.
  - Utilized Github actions, Helm, GCR for a standardized and efficient deployment process used by 4+ teams.**Automated Product Upgrades** | Python Taskflow Graph, Linux, Mongo, Airflow
  - Implemented cross platform end-to-end install/upgrades for 9+ services and data components used on 1000+ customer environments through multi-threaded Taskflow Engines.
  - Led the production migration of 2.6M MongoDB metadata documents using Python Taskflows.
  - Wrote a 200GB MongoDB Atlas transition, with 30+ system critical checks for data validity.
  - Designed Apache Airflow test suites, uncovering 20+ system-critical and 120+ routine bugs in the MVP.

## ACADEMIC PROJECTS

- **Georgia Institute of Technology** Atlanta, US  
*Course Projects* Aug 2022 - Present  
**Advanced Computing** | C++, OpenMPI, CUDA, Python, Sockets | Nov'22
  - Achieved 4x speedup in quicksort and Jacobi iteration via parallel algorithms and MPI in C++
  - Wrote efficient data partitioning techniques that reduced & storage complexity by an order of magnitude of  $O(n)$ .
  - Wrote a C++ TCP client-server system using sockets wrapper for real time interaction with the system.**Paraphrasing using BERT** | Python, HuggingFace | Nov'22
  - Introduced three novel architectures—Lin-CS, NonLin, Concat— on pretrained BERT model for early sentence interaction in paraphrase detection, finding linear layers + fixed cosine-similarity to be optimal.
  - Trained & validated the models on MRPC and TAPACO datasets, balancing the corpus to mitigate bias & overfitting.**Unpaired image-to-image translation using CycleGAN** | Pytorch, Tensorflow | April '19
  - Developed a CycleGAN in PyTorch to transform horse-to-zebra images using the UC Berkeley dataset.
  - Implemented dropout layers and conducted hyperparameter tuning to optimize the model's performance.

## TECHNICAL SKILLS

- **Languages:** Bash, C++, Go, Python, Web3, Solidity
- **Relevant Courses:** Adv. Programming Tech, High Perf. Computing, Computer Networks, Computer Vision, Generative DL, Neural Networks, Stat ML