

Contact

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www.linkedin.com/in/dheeraj-pai
(LinkedIn)

dheerajmpai.github.io (Personal)

Top Skills

Cybersecurity

Malware Analysis

Multimodal Machine Learning

Languages

Sanskrit (Elementary)

Japanese (Elementary)

Hindi (Native or Bilingual)

Konkani (Native or Bilingual)

English (Native or Bilingual)

Kannada (Native or Bilingual)

Certifications

DevOps Foundations

Neural Network and Deep Learning

Learning Firebase Cloud Messaging
for Android

Ethereum: Building Blockchain
Decentralized Apps (DApps)

Usable Security

Honors-Awards

Kishore Vaigyanik Protsahan Yojana
Fellowship (KVPY)

National Talent Search Examination
(NTSE)

Bronze medal in International
Cryptography Olympiad conducted
By Novosibirsk State University

Bronze medal (2nd Time) in
International Cryptography Olympiad
conducted By Novosibirsk State
University

Publications

Dheeraj Pai

AI & Cybersecurity @ Early stage startup | Ex - Qualcomm, CMU, IIT
Madras

Palo Alto, California, United States

Summary

Hi there! I'm a Graduate Student and Researcher at Carnegie Mellon University, where I work on algorithms to make machines see, think and talk like Humans. My primary focus is on Natural Language processing – to enable machines to intelligently interact with the world in the languages we speak. Currently, I'm more focused towards Multi-modal Language models enabling Language models to infer information from vision and audio.

Experience

System Two Security

Sr. Machine Learning Engineer

May 2024 - Present (5 months)

Palo Alto, California, United States

Working in the intersection of Machine Learning, Large Language Models and
Threat hunting

FPrime AI

Machine Learning Engineer

January 2024 - May 2024 (5 months)

United States

Carnegie Mellon University School of Computer Science

Graduate Teaching Assistant

May 2023 - December 2023 (8 months)

Pittsburgh, Pennsylvania, United States

- Teaching assistant for Prof. Bhiksha Raj for CMU's flagship course Introduction to Deep Learning (11-785)
- Conducted recitation on automatic differentiation and modern autodiff libraries. Updated the recitation from previous versions to including current aspects of training large neural networks (including Large language models) on Multi-GPU

Effective Community Testing for
Detection of COVID-19 Patients
using Pooling and Search Algorithms

Neural Decoder for Topological
Codes using Pseudo-Inverse of
Parity Check Matrix

Setup using Deepspeed and Fairscale. Video: <https://www.youtube.com/watch?v=FycSknrEVYA>

- Provided mentorship, conducted recitation for a class of over 400 students.
- Updated homework assignments to include an auto-differentiation library, enhancing the technical depth of the course assignments.
- Helped students from varied backgrounds develop an auto-differentiation library from scratch.

Qualcomm

Machine Learning Intern

May 2023 - August 2023 (4 months)

San Diego, California, United States

- Designed and deployed MLOps pipeline for tracking and analyzing the metrics of a power-efficient location-tracking edge device.
- Designed a from scratch a caching strategy for Vector databases (based on FAISS) for efficient mobile and edge deployment of Large language models . (awarded as best edge solution in Qualcomm ML Hackathon)
- Winner for best edge solution in NLP track in company-wide Global ML hackathon (400+ participants) for developing a caching strategy for vector databases

Optym

Senior Software Engineer

August 2021 - August 2022 (1 year 1 month)

Bengaluru, Karnataka, India

- Developed backend infrastructure for EV route optimization platform.
- Deployed the DevOps pipeline
- Reduced the run time of routing algorithm from 15 hours to 12 mins using efficient data structures in python

Newton School

Programming and Career advancement Mentor

April 2021 - December 2021 (9 months)

Bengaluru, Karnataka, India

- Guided 12 students and working professionals in Data Structures, Algorithms, Databases, and Full Stack Development.
- Conducted in-depth instructional sessions and practical workshops.
- Provided code debugging assistance, enhancing problem-solving skills.

- Facilitated career advancement through mock interviews and personalized job search strategies.

Hyperweb AI

Co-Founder

October 2019 - August 2021 (1 year 11 months)

Bengaluru, Karnataka, India

Lowering the language barrier in accessing the educational content using AI. Our mission is provide universal access to knowledge and information in the most engaging manner with the current focus in educational sector. Please visit <https://www.hyperweb.ai> to know more.

Indian Institute of Technology, Madras

1 year

Graduate Teaching Assistant

June 2018 - May 2019 (1 year)

Chennai, Tamil Nadu, India

Fall Course(Odd sem): Computational Photography by Prof. Kaushik Mitra

Summer Course(Even Sem): Deep Learning for Computer Vision by Prof.

Kaushik Mitra and Prof. A.N. Rajagopalan

Graduate Teaching Assistant

July 2018 - December 2018 (6 months)

Chennai, Tamil Nadu, India

Course: Deep Learning for Computer Vision by Prof. Kaushik Mitra and Prof. A.N. Rajagopalan

Indian Statistical Institute, Kolkata

Summer Internship

May 2017 - July 2017 (3 months)

Kolkata, West Bengal, India

Worked on implementing Lattice based signature system. https://github.com/dheerajmpai/Lattice-Based-Signatures-State-of_art

HCL TalentCare

Summer Internship

May 2016 - July 2016 (3 months)

Chennai, Tamil Nadu, India

Worked on creating a Data Science training program for incoming recruits and trainees in HCL TalentCare

Indian Institute of Technology, Madras

1 year 10 months

Coordinator, Institute Colloquim

June 2015 - June 2016 (1 year 1 month)

- Coordinated tech talks in Institute's official debating platform.
- Organised talks by Shri Sam Pitroda and Prof. Ashok Jhunjhunwala

Communications System Engineer, IITMSAT

October 2014 - May 2016 (1 year 8 months)

Chennai, Tamil Nadu, India

Worked on the satellite on-board communication system at IITMSAT student satellite team.

Technical Affairs Secretary, Mahanadi Hostel

September 2014 - May 2015 (9 months)

Chennai, Tamil Nadu, India

- Unanimously won the election with an electorate of 700 students in the freshman year.
- Initiated intra-hostel clubs for the first time in IIT Madras.
- Lead the hostel in series of tech-related competition (TechSoc & SHAASTRA) in IIT Madras.
- Lead the hostel to win 2nd prize (amongst 28 hostel) in TechSoc. (The first time for a fresher hostel to reach top-3)

Education

Carnegie Mellon University

Master of Science - MS, Artificial Intelligence (INI) · (May 2022 - December 2023)

Indian Institute of Technology, Madras

B.Tech and M.Tech Dual Degree, Electrical Engineering · (2014 - 2019)

The Hong Kong University of Science and Technology

Computer Science · (May 2018 - August 2018)