Hemang J Jamadagni

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Education

National Institute of Technology Karnataka — Major CGPA - 8.77
Bachelor of Technology in Computer Science and Engineering, Minor in Machine Learning — *Minor CGPA - 8.5*

Sri Chaitanya Techno School
Senior Secondary Education — *XII Score - 96.2*

Experience

Undergraduate Research Intern — April 2024 – Aug 2024
Indian Institute of Science(IISC) — *Bengaluru, KA*

- Contributed as a Co-Author to the development of **Un-DIVE: Underwater Domain Invariant Video Enhancement**, a new **state of the art(SoTA)** method for improving the quality of underwater videos, under the supervision of **Dr. Prathosh A. P**.
- Developed and trained the final encoder of the Un-DIVE model which is built on a **DDPM**, pre-trained on underwater images.
- Benchmarked the Un-DIVE model against existing underwater image/video enhancement methods.
- Contributed to writing the final research paper detailing the Un-DIVE model by assisting in compiling results. The paper is currently being reviewed for publication in the well-reputed international conference, *IEEE CVF Winter Conference on Application for Computer Vision Tucson, Arizona* ***(CVF WACV2025)***.

Projects

Publication: HARQ Softcombining using BiLSTM GitHub | *Python, Pytorch, Komm* — Nov '23 – March '24

- Developed a deeplearning based protocol to enhanced the **Hybrid Automatic Repeat Request** (HARQ) Protocol with **Soft Combining** for error correction.
- The model uses a **Bidirectional Long Short-Term Memory Autoencoder** architecture, which takes two post-transmission frames as input and combines them into the final frame.
- The work has been accepted for publication in the **Scopus Indexed Book Chapter** followed by a presentation at ***SSWC2024****: International Conference on Smart Systems and Wireless Communication.*

A Hole New World: Seamless Image Inpainting GitHub | *PyTorch, Flask, Javascript* — April '24 – May '24

- Developed an Interactive **Flask** App to fill in, masked facial images of people from the CelebA Dataset.
- Used the **Javascript Fetch API** to create an interactive environment to control the image masking.
- Experimented with various image inpainting techniques **(W-GAN, Pix2Pix, CE-GAN)**. Achieved the best results with **Context Encoder GAN**, producing a well-blended inpainted image.

Daily DDPM Anime GitHub | *Python, Pytorch, OpenCV, InstagrAPI, GitHub Actions* — May '24 – June '24

- Developed an Instagram Bot using the InstagraAPI to post Anime Images generated using a deep learning model.
- Developed and trained a **Denoising Diffusion Probabilistic Model (DDPM)** on the Anime Face Dataset. Researched and Experimented with different training strategies and achieved the best results with fixed variance-linear schedule training generating extremely high-quality anime facial images.
- Used **GitHub Actions** to host the bot and ensure its uptime.

Technical Skills

Languages: Python, C/C++, JavaScript, Typescript, Bash, HTML, CSS, MySQL, Java
Frameworks: Flask, BootStrap, PyTorch, Sci-Kit Learn, OpenCV, HuggingFace, Discord API, InstagrAPI, FetchAPI
Developer Tools: Git, GitHub, Git LFS, GitHub Actions, VS Code, Postman, Cisco Packet Tracer, Wireshark, Aceternity UI, Framer Motion, Sentry, ESLint
Libraries: Pytorcg, Pandas, NumPy, Matplotlib, TensorFlow, Flask, Keras, Next.js, React.js, Tailwind.css
Fields of Work: Computer Vision, Web Development, Computer Networks, Deep Neural Networks, Machine Learning, Natural Language Processing, Linux Development

Extracurricular Activities

- Active member of the IEEE Student Chapter, NITK.
- Secured 5th place in the Kaggle Cup, a classical ML Hackathon by IEEE-NITK during the 1st semester.
- Secured 2nd place in the AI-Vision Cup, a CV Hackathon by IEEE-NITK during the 3rd semester.