



SAHIL GOYAL

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[GitHub](#) [LinkedIn](#) [Medium](#)

INTERESTS

Computer Vision, Generative Models, Efficient ML, Mathematics, Research, Open-Source

Computer Languages: C++, Python, SQL

Software Packages: PyTorch, JAX, Scikit-Learn, Pandas, Numpy, Git, Docker, Tensorflow.js, OpenCV, Optuna

EDUCATION

Indian Institute of Technology Roorkee

Integrated MS, Applied Mathematics

July 2019 - May 2024

Overall GPA: **9.44/10**

PUBLICATIONS

- **Sahil Goyal**, Abhinav Mahajan, et al. Design-o-meter: Towards Evaluating and Refining Graphic Designs. In IEEE/CVF Winter Conference on Applications of Computer Vision (**WACV**) 2025.
- **Sahil Goyal**, Shagun Uppal, Sarthak Bhagat, et al. Emotionally Enhanced Talking Face Generation, preprint arXiv:2303.11548, 2023. (Accepted at **ICCV 2023**, **CVEU Workshop** and **ACM MM 2023**, **McGE Workshop**) [\[Paper\]](#) [\[Code\]](#) [\[Video\]](#)
- **Sahil Goyal**, Shagun Uppal, Sarthak Bhagat, et al. Emotional talking faces: Making videos more expressive and realistic. In Proceedings of the *ACM International Conference on Multimedia in Asia (ACM MM Asia)*, pages 1–3, 2022. (Won the **Best Demo Paper Award**)

EXPERIENCE

Research Associate at GOOGLE-DEEPMIND

June 2024 - Present

- Efficient Image/Video Generation.
- Paper under peer review.

AI Internship at ADOBE-RESEARCH

May 2023 - July 2023

- A Novel **self-supervised** approach to evaluate Graphic Designs quantitatively (Grammarly for Graphic Designs).
- Used **Siamese** networks along with Design Heuristics to score Graphic Designs.
- Modified advanced **Genetic Algorithms** (NSGA-II) for **Layout optimization**.
- Achieved **95.1%** accuracy using **GroupNorm**.
- Deployed the entire system as a Flask Web Application with potential integration into **Adobe Express**.
- Worked under the supervision of **Dr. Joseph KJ** and **Dr. Balaji Vasana Srinivasan**.

AI Research Internship at MIDAS-IIITD

September 2021 - January 2023

- A novel **CNN-based talking face generation** network involving **lipsync** and explicit **emotions**.
- New skip-connections-based concatenation technique to concatenate video, audio, and emotion embeddings.
- SOTA results on **CREMA-D** dataset (**83.2%** emotion classification accuracy and **FID** metric: **5.29**).
- Deployed the entire system as an interactive web interface.
- Worked under the supervision of **Dr. Rajiv Ratn Shah**.

Machine Learning Internship at PANDO

March 2021

- Optimized a heuristic algorithm (3-D loading space optimization for transport).
- Used **vectorized operations** and **parallel computing**.
- Reduced the algorithm's running time by **95 %** on real-world data.
- The most used libraries in the code were **Numpy** and **PyTorch**.

PROJECTS

Model Extraction Attacks for Video Classification [\[Code\]](#)

Feb 2022 - March 2022

- **Model extraction** on video-based models (Swin-T and MoViNet-A2-Base) in the black box and grey box settings.
- Used **Knowledge Distillation**-based technique on **Kinetics** dataset.
- Utilized Data Free Model Extraction framework, synthetic data, image stacking, and data augmentation.

Global-Wheat-Detection-2021 [\[Code\]](#)

June 2021 - July 2021

- Performed detailed **EDA** on wheat images acquired from different continents.
- Used **Faster RCNN** with different **ResNet** and ResNext backbones for **wheat-head detection**.
- Utilized Data augmentation, Non-Maximum Suppression, Weighted boxes fusion, and Pseudo Labeling.
- Achieved **56.2%** Average Domain Accuracy.

BicycleGAN [\[Code\]](#) [\[Blog\]](#)

Dec 2020

- Used BicycleGAN for 2 tasks: **Edges to Images** (Edges to Shoes dataset) and **Denoising images** (CIFAR10 dataset).
- A well-written blog on BicycleGAN.
- Achieved **LPIPS** metric of **0.16** (Edges to Images) and **0.33** (Denoising images).

VisualML [\[Code\]](#) [\[Demo\]](#)

May 2020 - July 2020

- A set of interactive ML visualization demos (browser-based).
- Contributed to **PCA**, **vanishing gradients**, and **ANN** demos.
- Used TensorFlow.js, Plotly.js, and numeric libraries.
- **110+** stars on GitHub

ACHIEVEMENTS

- **Best Demo Paper** at ACM MM ASIA '22 conference.
- **Department Gold medal** (IIT Roorkee - Applied Mathematics).
- Reviewer at CVPR, ICML, ICLR, WACV conferences.
- **Gold medallist** in Inter IIT Tech Meet 2022 (Model extraction task).
- Maximum rating: Expert, **1641** on Codeforces (handle: [sahilgo](#))
- **Open Source**: 5 commits to PyTorch-Vision.
- Awarded ACM SigMM student travel grant for ACM MM Asia '22.
- Represented IIT Roorkee in Inter IIT Tech Meet 2021 (NLP task).
- JEE Advance Rank: **1583**

POSITIONS OF RESPONSIBILITIES

- Senior member at [Data Science Group IITR](#) *January 2020 - May 2024*
 - Lead various ML projects.
 - Discuss various basic as well as advanced research papers.
 - Organize several hackathons for students.
 - Contribute to **open-source** organizations such as [PyTorch](#).
- Undergraduate Teaching Assistant of Academic Reinforcement Program *April 2021 - July 2021*
- Member of National Social Service IITR *August 2019 - August 2020*