Sarthak Thakur

Adelade, AU | +61474351247 | sarthak247@outlook.com

ABOUT ME

I am a dedicated and driven individual currently pursuing a Masters of Data Science at University of Adelaide, specializing in cutting-edge technologies such as Generative Adversarial Networks (GANs) and Convolutional Neural Networks (CNNs). With a strong academic background and practical experience in developing tools for early diagnosis, as well as mentoring fellow students, I am passionate about leveraging AI to solve real-world challenges and drive innovation.

EDUCATION

University of Adelaide **Adelaide, AU**
Masters in Data Science *May 2022 - Present*

- While pursuing my Masters of Data Science at the University of Adelaide, I actively interned at the Australian Institute for Machine Learning. Concurrently managing my coursework, my primary focus was to further my understanding and expertise in Generative Adversarial Networks and Natural Language Processing for generative applications.
- GPA: 6.64/7

University Institute of Engineering & Technology **Chandigarh, IN**
Bachelors in Engineering, Computer Science *June 2017 - June 2021*

- In conjunction with my academic coursework, I actively engaged in projects involving Convolutional Neural Networks (CNNs) and Generative Adversarial Networks (GANs). I contributed to the development of tools aimed at facilitating early diagnosis, while also providing mentorship to fellow students in their respective projects.
- GPA: 7.69/10

WORK EXPERIENCE

Australian Institute for Machine Learning **Adelaide, AU**
Machine Learning Intern *September 2022 - December 2022*

- Collaborated closely under the guidance of supervisors to develop expertise in Real-Time Neural Style Transfer on Videos.
- Successfully navigated significant challenges, including conducting extensive literature reviews, implementing state-of-the-art methods, and enhancing them to ensure temporal consistency across consecutive frames in live camera feed videos during style transfer.
- Acquired comprehensive knowledge of research areas such as Deep Learning Optimization Techniques, including Knowledge Distillation and Quantization. Utilized libraries such as TensorRT and Pytorch-JIT to accelerate inference time while performing style transfer.
- Investigated the impact of Automatic Mixed Precision on the training and inference speeds and GPU utilization of PyTorch models for different class of GPUs

Algods **New Delhi, IN**
Django and Machine Learning Developer *June 2021 - September 2021*

- Collaborated closely within an 8-member team to develop a Customer Relationship Management (CRM) system for a logistics enterprise.
- Engaged in a variety of daily responsibilities, such as designing and developing the database, managing the migration of changes, creating and testing REST APIs, and facilitating the handover of these components to the frontend team.
- Additionally, contributed to user clustering efforts and the prediction of purchase order patterns among users, leveraging existing data provided by the logistics company.
- Played a role in designing a forecasting algorithm to enhance understanding of seasonal logistics bookings by analyzing historical data furnished by the company.

Design & Innovation Center **Chandigarh, IN**
Machine Learning Researcher *June 2019 - June 2021*

- Engaged in daily activities that encompassed researching established Computer Vision architectures and exploring avenues for their enhancement.
- Conducted research focused on image classification and segmentation tasks within the medical domain, specifically addressing areas such as Brain Tumor Segmentation and Glaucoma Classification.
- Furthermore, I developed a test GUI using PyQt5 for our glaucoma classification task, enabling input image analysis and delivering conclusive judgments, along with heat maps showcasing the diagnosis.
- Assumed a mentorship role during summer and winter internship periods, providing guidance and support to junior interns within the organization.
- Undertook a notable final project involving the utilization of Generative Adversarial Networks for facial inpainting, aimed at reconstructing partially damaged faces.

LEADERSHIP/VOLUNTARY EXPERIENCE

AI & ML Student Club **University of Adelaide**
General Committee Member *September 2022 - Present*

- Played an active role in coordinating AI workshops and tutorials within the club.
- Assisted in fostering collaboration and securing backing for the club by facilitating meetings with industry organizations operating in the same field.
- Contributed to the organization of events such as Industry Night at the university, aimed at bridging the divide between academic studies and the industry for students.

Programming Club **University Institute of Engineering & Technology**
Mentor *September 2017 - June 2021*

- Collaborated in the strategic planning and seamless organization of programming-related sessions and workshops.
- Played an instrumental role in orchestrating an annual hackathon on the college campus, fostering an environment of innovation and collaboration among participants.
- Additionally, assisted in curating the content and materials for programming sessions and workshops, ensuring their relevance and effectiveness.

ACADEMIC RESEARCH PAPER REVIEWER

Scientific Report (Nature) **United Kingdom**
Nature Portfolio Group *March 2023*

- Scientific Reports is a prestigious journal by Nature which has a two-year impact factor 4.996 (2021), and is the fifth-most cited journal in the world, with more than 696,000 citations in 2021.

PUBLICATIONS

DC-Gnet for detection of Glaucoma in retinal fundus imaging
Machine Vision and Applications *18 May 2020*

- Primary Task: Image Segmentation
- Developed and deployed a Convolutional Neural Network architecture to accurately identify and segment cup and disc regions within fundus images of patients' eyes.
- Utilized the segmented cup and disc regions to calculate the Cup-to-Disc Ratio (CDR), a crucial metric used in the diagnosis of Glaucoma.

Fused system for glaucoma diagnosis using Optical Coherence Tomography (OCT) images
Expert System with Applications *01 September 2022*

- Primary Task: Ensemble modeling
- Developed a unified framework that integrates the outputs of classical machine learning algorithms and a 3D Convolutional Neural Network (CNN).
- Implemented Major Voting and Weighted Decision Fusing methodologies to facilitate the voting process within the framework.

PROFESSIONAL SKILLS

- **Programming:** C, C++, Python, R, Matlab
- **Data Science:** Computer Vision, Natural Language Processing (Text), Machine Learning, Deep Learning
- **Web:** HTML, CSS, Bootstrap, JavaScript, Django, Flask
- **Database:** SQL
- **Frameworks:** PyTorch, Keras, Tensorflow, PyQT5
- **Tech:** GitHub, Linux, Data Analysis, Weka