SHIVAM GROVER

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SUMMARY

Machine learning researcher with experience in diverse domains such as time-series, text, and images, with a recent first-author publication at **NeurIPS 2024** on a low-cost modular PyTorch layer for improving **time-series** representation learning, which I also presented as an invited speaker at the University of Toronto. I am a recipient of the highly competitive **Vector Scholarship in AI**, and also received global recognition for my work, including an award from the **Prime Minister of India** at the Singapore-India Hackathon and the Marconi Society's Celestini Prize from Padmasree Warrior.

SKILLS

Frameworks	**PyTorch**, Pandas, NumPy, Matplotlib, OpenCV, Scikit-learn
Languages	**Python**, SQL, Java, Javascript, Ruby on Rails
Misc. Proficiencies	Elastic Search, AWS, Heroku, Docker, Slurm, Flask, LaTeX, Linux
	GANs, Transformers, RNN, CNN, HuggingFace

EXPERIENCE

Researcher - AI — Sep 2023 - Present
INGENUITY LABS RESEARCH INSTITUTE — *Kingston, ON*

- Built and published **S3** (Segment, Shuffle, Stitch), a **PyTorch Layer** to explore alternative arrangement of time steps in order to improve representation learning. ([GitHub](#))([PyPI](#))
- Applied S3 to 8 SOTA baselines for time series, resulting in improvements up to 64% on forecasting, and 38% on classification tasks. Paper published in **NeurIPS 2024**. ([Arxiv](#))([OpenReview](#))
- Currently building **Dynamic S3**, an extended version of S3 that can adapt to OOD data during inference.

Software Development Engineer — May 2021 - Aug 2023
AEROLEADS — *Bangalore, India*

- Developed an advanced Elastic Search database handling 650M records across 4 collections, maintaining low search latency through optimized indexing. (***Link***)
- Built and deployed an Email Verifier API (used by 180K customers) on Heroku, reducing third-party costs by $5000/month, improving concurrency by 80%, and resolving timeout issues. (***Link***)
- Built a Chrome extension for automating contact data extraction, downloaded by 40K+ users. (***Link***)

Undergraduate Research Assistant — May 2020 - Aug 2020
IIIT DELHI — *New Delhi, India*

- Developed a novel approach for simultaneous pose and appearance transfer in human images using conditional GANs, ensuring identity retention with custom cyclic consistency objectives. Implemented with **PyTorch**. (***Link***)

Undergraduate Research Assistant — Jun 2019 - Oct 2019
IIT DELHI — *New Delhi, India*

- *Featured in the [Tensorflow Blog](#), [Business Wire](#), and the [Marconi Society Blog](#).*
- Collected a dataset of 10,000+ outdoor images, paired with the corresponding PM2.5 values, across 80+ locations using 15+ smartphones. (***Link***)
- Trained a deep learning model on the collected dataset and built an Android application enabling users to capture an image and instantly predict the surrounding PM2.5 levels.
- Implemented on-device training and Federated Learning to enhance model performance while ensuring user data privacy.

EDUCATION

Queen's University   Sep 2023 - Present
MASTERS OF APPLIED SCIENCE IN ECE (AI)   *Kingston, ON*

- GPA: 4.1/4.3

- Fully funded masters sponsored by **Vector Scholarship in AI**, and **Queens Graduate Award**.

Bharati Vidyapeeth's College of Engineering (GGSIPU)   Sep 2027 - Sep 2021
BACHELOR OF TECHNOLOGY IN INFORMATION TECHNOLOGY   *New Delhi, India*

- CGPA: 8.13/10.0

- Represented my college and secured wins in several prestigious hackathons and competitions.

PUBLICATIONS

Shivam Grover, Amin Jalali, Ali Etemad, Šegment, Shuffle, and Stitch: A Simple Mechanism for Improving Time-Series Representations", *Neural Information Processing Systems* **(NeurIPS)**, *2024*.

Shivam Grover, Kshitij Sidana, Vanita Jain, "Improving Generalization for Geometric Variations in Images for Efficient Deep Learning", *Multimedia Tools and Applications*, 2023.

Shivam Grover, Kshitij Sidana, Vanita Jain, "Pipeline for 3D reconstruction of the human body from AR/VR headset mounted egocentric cameras", *arXiv:2111.05409 [cs.CV]*, 2022.

Vanita Jain, Qiming Wu, **Shivam Grover**, Kshitij Sidana, Gopal Chaudhary, San Hlaing Myint, Qiaozhi Hua, "Generating Bird's Eye View from Egocentric RGB Videos", *Wireless Communications and Mobile Computing*, vol. 2021.

SELECT AWARDS

Vector Scholarship in AI: Highly competitive scholarship for rising AI researchers.

Singapore India Hackathon 2019, IIT Madras: Awarded by the **Prime Minister of India** and the former education minister of Singapore.

Paul Baran's Young Scholar's Celestini Prize, 2019: Awarded by Mrs. Padmasree Warrior (the ex-CTO of Motorola and Cisco).

Software Edition of Smart India Hackathon, 2019: *First prize*, organised by the Indian Government.

Hardware Edition of Smart India Hackathon, 2019: *First prize*, organised by the Indian Government.

e-Yantra, Robotics and Computer Vision compeition, 2019: *First prize*, organised by IIT Bombay. Received special mention for having 3 consecutive perfect runs.

MISCELLANEOUS

- **Invited Talk** on "Improving Time-Series Representation Learning through Alternate Sequence Arrangements" at the University of Toronto (*Nov 2024*).

- **Academic Reviewer** for ICML, AISTAT, IEEE Transactions on AI.

- **Graduate Teaching Assistant** for ELEC 376: Software Development Methodologies (*Jan 2024 - Apr 2024*).