Sachin Chhabra

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EDUCATION

Doctor of Philosophy (Ph.D.) in Computer Science, Arizona State University, GPA: 4.0/4.0 [Dissertation] **Aug 2019 — May 2024**
Master of Science in Computer Science, Arizona State University, GPA: 3.9/4.0 **Aug 2017 — May 2019**
Bachelor of Technology in Computer Science, Vellore Institute of Technology, India **Aug 2009 — Aug 2013**

PUBLICATIONS & PATENTS
Full List at Google Scholar 🔷

1. **Chhabra,S.** *et al.* Label Smoothing++: Enhanced Label Regularization for Training Neural Networks. *BMVC* (2024). [🌐] [📄] [🐙]
2. **Chhabra,S.** *et al.* PatchRot: Self-Supervised Training of Vision Transformers by Rotation Prediction. *BMVC* (2024). [🌐] [📄] [🐙] [🎖]
3. **Chhabra,S.** *et al.* Translation of Partially Paired Images with Generative Adversarial Networks *IEEE EMBS BHI* (2024). [📄]
4. **Chhabra,S.** *et al.* Generative Alignment of Posterior Probabilities for Source-free Domain Adaptation. *WACV* (2023). [🌐] [📄]
5. **Chhabra,S.**, Venkateswara, H. & Li, B. PatchSwap: A Regularization Technique for Vision Transformers. *BMVC* (2022). [🌐] [📄] [🐙] [🎖]
6. **Chhabra,S.** *et al.* Glocal Alignment for Unsupervised Domain Adaptation. *ACM Multimedia Workshop on Multimedia Understanding with Less Labeling* (2021). [📄] [🐙]
7. **Chhabra,S.**, Venkateswara, H. & Li, B. Iterative Image Translation for Unsupervised Domain Adaptation. *ACM Multimedia Workshop on Multimedia Understanding with Less Labeling* (2021). [📄]

WORK EXPERIENCE

- **Machine Learning Scientist** **July 2024 — Present**
  WayFair Boston, Massachusetts
  Applying machine/deep learning techniques for data analysis and sales forecasting.

- **Data Science and Machine Learning Intern** **June 2023 — Aug 2023**
  WayFair Boston, Massachusetts
  Automated product color extraction from images using object detection and segmentation based on input query text.

- **Data Science and Machine Learning Intern** [🔖] **May 2022 — Aug 2022**
  WayFair Boston, Massachusetts
  Designed and implemented a Graph Neural Network (GNN) framework to build an item-to-item-based recommendation system.

- **Machine Learning Intern** **May 2020 — Aug 2020**
  Systems Imagination Tempe, Arizona (Remote)
  Processed time series and tabular data using a hybrid neural network to predict covid case counts and risk for the US counties.

- **Senior Software Engineer** **Dec 2013 — Jun 2017**
  Accenture Bangalore, India
  Worked on migration scripts, stored procedures for databases, and wrote SQL queries for ETL transformation logic.

PROJECTS & PROFESSIONAL SERVICES

- **Large Language Model (LLM) from Scratch in PyTorch** [🐙]
  Implemented GPT3 and LLaMA-2 based Large Language Models (LLM) from scratch in PyTorch with functionalities like Byte-Pair Tokenizer, Rotational Positional Embedding (RoPe), SwishGLU, RMSNorm, and Mixture of Experts (MOE).

- **Vision Transformer from Scratch in PyTorch** [100+ ★] [🐙]
  Implemented Vision Transformer (ViT) from scratch in PyTorch, including operations like self-attention.

- **Various Generative Adversarial Networks (GAN)** [🐙]
  Implemented Vanilla-GAN, Deep Convolution GAN (DCGAN), Least Squared GAN (LSGAN), Conditional GAN (cGAN), CycleGAN, Wasserstein GAN (WGAN), Improved Wasserstein GAN (WGAN-GP), and StarGAN for generating/translating images.

- **Facial Expression Recognition - Master Thesis** **Aug 2018 — Apr 2019**
  Built a hybrid convolutional neural network (CNN) by fusing features from multiple domains to achieve better classification.

- **Research Paper Reviewer** **2021 — Present**
  Regularly reviewed research papers for CVPR, ICLR, NeurIPS, ICCV, ECCV, ICML, BMVC, WACV, ACM TIST.

TECHNICAL SKILLS

Skills	Computer Vision, Deep Learning, Machine Learning, Data Science, Google Cloud Services (GCP)
Languages	Python, SQL, Java
ML Packages	PyTorch, OpenCV, Scikit-learn, NumPy, MATLAB, Keras, TensorFlow
Deep Learning	Transfer Learning, Generative Adversarial Network (GAN), Transformers, Graph Neural Network