ARPIT JADON

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EXPERIENCE

Computer Vision Engineer
Energy Robotics GmbH
February 2024 – May 2024 Berlin, Germany

- Worked on 3D scene understanding to make robots autonomous for inspection in different industrial settings.
- Developed an algorithm to generate faster 3D semantic segmentation annotations for LiDAR point clouds.

AI Research Engineer
Oraclase GmbH@Max Planck Institute for Informatics
July 2023 – January 2024 Saarbrücken, Germany

- Used computer vision and machine learning for **laser material processing and computational fabrication**.
- Directly worked on developing an **AI-based cloud software** to reduce the time spent in the laser marking process.

Machine Learning Engineer
Onward Assist
July 2019 – October 2020 Hyderabad, India

- Developed computer vision algorithms for real-time cancer diagnosis and prognosis - **deployed these algorithms as cloud software** for user interactability.
- Worked on multiple data modalities - whole slide images, X-Rays, microscopic images (including multi-spectral), pharmacological data, etc.
- Majority of the projects were based on **digital pathology and radiology**.
- **Supervised multiple interns** for six-month periods on digital pathology and pharmacology-related projects.

Research Assistant
Max Planck Institute for Informatics
October 2021 – June 2023 Saarbrücken, Germany

- Developed an optimal source data subsampling method [*AdaptSampler*] for improved **unsupervised domain adaptation (UDA) performance in autonomous driving** applications.
- Collaborated with the team at Parallel Domain to **Collect SynthDrive, a synthetic autonomous driving dataset** that provides a major upgrade over existing datasets in terms of realism and diversity while comprising a comprehensive annotation set with multiple 2D and 3D modalities.
- **Modified Cityscapes annotation tool** to create **low-effort instant segmentation annotations** from semantic segmentation annotations for the **ACDC driving dataset**.

Research Assistant
German Research Center for AI
July 2021 – September 2021 Saarbrücken, Germany

EDUCATION

M.Sc. in Computer Science
Universität des Saarlandes and Max Planck Institute for Informatics
November 2020 – April 2023

Coursework: Probabilistic Graphical Models & Applications, Neural Networks: Theory and Implementation, Optimization for Machine Learning, Human-Computer Interaction, Image Processing & Computer Vision, High-Level Computer Vision, Geometric Modeling, Computer Vision & ML for Computer Graphics

Thesis: **Semantic Road Scene Understanding with Realistic Synthetic Data.** Supervised and Reviewed by Dr. Dengxin Dai and Prof. Dr. Bernt Schiele.

B.Sc. in Electrical Engineering
ZHCET, AMU
August 2015 – July 2019

Coursework: Introduction to AI, Mathematics I & II, Higher Mathematics, and Numerical Techniques.

SKILLS

- **Concepts**: Computer Vision, Image Processing, Machine Learning, Deep Learning, Data Science, Artificial Intelligence, Generative AI, Large Language Models (LLMs), Prompt Engineering, Neural Networks, Transformers, Self-Supervised Learning, Unsupervised Domain Adaptation, Medical Imaging, AI for Healthcare, Autonomous Driving, Robotics, LiDAR Perception, Semantic Segmentation, Object Detection, Research, Data Acquisition, Sensor Interfacing, and Embedded Systems.
- **Programming**: Python, Matlab, Octave, and C/C++ (Beginner).
- **Frameworks & Tools**: PyTorch, TensorFlow, Keras, Docker, Git, Agile Scrum (Jira), Slurm (GPU Cluster), Sklearn, SciPy, NumPy, Flask, Pandas, OpenCV, Matplotlib, Apache Beam, Google Cloud Platform (GCP), Microsoft Azure, Confluence, and LaTeX.
- **Operating Systems**: Windows, Linux

- Proposing a **generalized model transferable to different medical image modalities** for improved performance on different vision tasks.
- The model was trained in a self-supervised way to learn representations for multi-modal images.

OTHER R&D PROJECTS

- Built an Apache Beam Dataflow Pipeline and Deployed to Google Cloud Platform for Analysing the London Bicycle Hires Dataset.
- Prompt Engineering with FLAN-T5 Model for Dialogue Summarization.
- Computer Vision Based Underwater Autonomous Surveillance System.
  - ◇ Underwater abnormal object detection and tracking.
  - ◇ Efficient underwater image compression for faster data transmission via acoustic communication.
- Lightweight Fire & Smoke Detection Model for Real-Time IoT Applications
  - ◇ Deep learning based computer vision algorithm deployed to low-cost embedded systems. The product can differentiate between fire and smoke.
- Real-Time Mitosis Detection in Whole-Slide Breast Cancer Histopathology Images.
- Contrast to Adapt: Noisy Label Learning with Contrastive. Warm-up for Source-Free Unsupervised Domain Adaptation.
- Improving Semantic Segmentation Performance using Conditional Random Fields.

PUBLICATIONS

- C. Sakaridis*, H. Wang*, K. Li, R. Zurbrugg, **A. Jadon**, W. Abbeloos, D. Olmeda Reino, L. Van Gool, and D. Dai, "ACDC: The Adverse Conditions Dataset with Correspondences for Robust Semantic Driving Scene Perception," *IEEE Transactions on Pattern Analysis and Machine Intelligence*, 2024, Under review.
- O. Unal, **A. Jadon**, H. Wang, P. Thomas, M. Stanley, S. N. Cibik, O. Maher, L. Hoyer, and D. Dai, "Data Lab Baseline: A Multi-Modal Synthetic Dataset for Autonomous Driving," *IEEE Robotics and Automation Letters*, 2024, Under review.
- **A. Jadon**, S. Joshi, H. Prabhala, V. Ramachandra, L. Kini, A. Kulkarni, and S. Gowrishankar, "Deep Learning–Based Mitoses Recognition and Concordance Study with Pathologists," *Journal of Pathology Informatics*, 2021.
- **A. Jadon**, A. Varshney, and M. S. Ansari, "Low-Complexity High-Performance Deep Learning Model for Real-Time Low-Cost Embedded Fire Detection Systems," *Procedia Computer Science*, vol. 171, pp. 418–426, 2020.
- **A. Jadon**, M. Omama, A. Varshney, M. S. Ansari, and R. Sharma, "FireNet: A Specialized Lightweight Fire & Smoke Detection Model for Real-Time IoT Applications," *preprint arXiv:1905.11922*, 2019.

- **Languages**: English (*near native*), Hindi (*native*), and German (*beginner*).

ONLINE LEARNING

- Data Engineering with Google Dataflow and Apache Beam on GCP
- Generative AI With Large Lanuage Models
- Machine Learning
- Deep Learning Specialization Courses
- Embedded Systems & IoT Specialization
- TensorFlow Deep Learning Courses
- MATLAB Programming
- AI For Medical Diagnosis

ACHIEVEMENTS

- Award for Best Holistic Performance in Academics and Research
- SSGSA Globar Scholar Award
- Science Academies' (IASc-INSA-NASI) Summer Research Fellowship

HOBBIES

- Strength Training
- Bouldering
- Listening to- and Playing Music

REFEREES

Dr. Dengxin Dai
@ Director of Research, Huawei Zurich Research Center
ddai@mpi-inf.mpg.de

Dr. Vikas Ramachandra
@ CTO, Onward Assist
vikas@onwardhealth.co