

Akshay Joshi

M. Sc. Data Science & Artificial Intelligence

Graduate student with an extensive background in Semiconductors & Software Engineering R&D, currently pursuing research in Self-supervised Learning, Neuro-Symbolic Reasoning, Embodied Vision & Multilingual Conversational Question Answering at Universität des Saarlandes, Germany

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WORK EXPERIENCE

Research Assistant

German Research Center for Artificial Intelligence

11/2020 - Present

Saarbrücken, Germany

- Building novel memory-efficient Deep Neural Transformer-based Language Models similar to GPT-2, BERT & RoBERTa.
- Self-supervised Models trained on PubMed & MAUDE databases which comprise more than 50 million citations for Biomedical research literature hosted by FDA & National Library of Medicine.
- Develop Semantic Search, Emergency Alert & Forecast Systems for Smart Vigilance in Medical Product Research & Development.

Contact: Sophie Moser - Sophie.Moser@dfki.de

Graduate Teaching Assistant

Universität des Saarlandes

10/2020 - 03/2021

Saarbrücken, Germany

- TA for the lecture 'Architectures for Intelligent Systems' offered by Prof. Dr. Jana Koehler (Chair of Artificial Intelligence Group).
- Develop course materials for Intelligent Speech Assistants & Deep Reinforcement Learning Agents for Conversational Question Answering, Searching, Planning & Reasoning.
- The course has a cohort of ~46 M. Sc. Computer Science students.

Software Engineer I

Advanced Micro Devices R&D

08/2018 - 09/2019

Bangalore, India

- Instrumental in the design & development of Platform Security Processor (PSP) firmware for Ryzen x86 CPU.
- Owner for the design & validation of Microsoft PlayReady DRM protection technology for AMD Ryzen processors.
- Recommended by the Director of Software Engineering at AMD for my technical expertise and agile adaptability skills.

Intern

Advanced Micro Devices R&D

02/2018 - 08/2018

Bangalore, India

- Developed & validated AMD Ryzen Master Software Development Kit for CPU & Memory Overclocking (Frequency/Voltage) utilities.
- Delivered ~70 multi-platform Windows SDK APIs in 6 months.

Engineering Intern

Alstom

01/2017 - 03/2017

Bangalore, India

- Developed the data pre-processing pipeline which involved Data Cleansing, Wrangling & Dimensionality Reduction.
- Built Regression & Forecast models for predictive analytics and also performed Exploratory Data Analysis.

EDUCATION

M. Sc. in Data Science & Artificial Intelligence

Universität des Saarlandes

10/2019 - 03/2022

Saarbrücken, Germany

B. Eng. in Computer Science & Engineering

Visvesvaraya Technological University

08/2013 - 06/2017

Bangalore, India

TECHNICAL SKILLS

Python C++ NumPy PyTorch Scikit - learn

OpenCV CUDA SQL Computer Vision NLP

R Statistics Computer Graphics Deep Learning

Tableau Apache Spark IR | Data Mining Docker

A/B Testing GIT | JIRA Cloud Image Processing

RESEARCH PAPERS

Dense Art Style Recognition with Self-supervised Ensemble of Auto-Encoding Transformations [In Progress]

Investigation on the use of deep semi-supervised neural models to extract dense features in complex & ambiguous images spanning across 27 unique artistic styles. Self-supervision enforced to resolve class imbalance of WikiArt dataset. The dataset has 30 GBs of high-res paintings. Outperformed existing state-of-the-art methods by achieving an overall accuracy gain of ~15%.

ACADEMIC PROJECTS

Sentiment Analysis & Data Exploration of COVID-19 Tweets w/ Self-Attention Networks & XGBoost (08/2020 - Present)

Multi-stage Informational Retrieval & Ranking System using LM, BM25 (Okapi, Plus), TFIDF (08/2020 - 08/2020)

- The query processing time was reduced to ~8 mins from 20 mins using parallel processing, caching & efficient data structures.

Open-domain Question Answering with End-to-End Memory Networks over KG & Text (07/2020 - 08/2020)

- Pre-trained the network on Facebook bAbI dataset for automatic text understanding and multi-hop reasoning.
- Achieved overall Precision of ~70% & Recall of ~85%.

Real-time Event-driven Object Detection & Counting with YOLO v3 & OpenCV (05/2020 - 07/2020)

Architecture for Context-aware Intelligent Assistant using Deep Reinforcement Learning (08/2019 - 02/2020)

SEMINARS & CONFERENCES

Presentation on 'The Fundamentals of an x86 Server' at the Indian Institute of Science (02/2019 - 02/2019)

Research Poster on 'Advanced Cryptographic Standards & Security' at Computer Society of India (04/2017 - 04/2017)

Seminar on 'High Performance Quantum Computing' at Cambridge Institute of Technology (03/2017 - 05/2017)

HONOURS & ACHIEVEMENTS

Ranked in the Top 5% of the graduating class of Computer Science & Engineering (08/2013 - 07/2017)

Total number of Graduating Students: 106

Vice Captain of state-level Throwball team in Pre-University Throwball tournament (12/2012 - 12/2012)

LANGUAGES

English
Full Professional Proficiency

German
Limited Working Proficiency