

Sandeep Kumar

☎ (+91) 70-5412-6863 | ✉ sandeepkr@iitk.ac.in | 🏠 krsandeep98.github.io | 📁 krsandeep98

Education

Indian Institute of Technology Kanpur

Jul. 2015 - Jul. 2019 (exp)

B.S. IN MATHEMATICS AND SCIENTIFIC COMPUTING (8.64/10)

Research Interests

COMPUTER VISION, NATURAL LANGUAGE PROCESSING, MACHINE LEARNING

Publications

Multimodal Differential Network For Visual Question Generation

EMNLP 2018 PDF

- Developed a method to incorporate exemplars to learn differential embeddings for generating natural questions for an image
- Obtained Multimodal embeddings by combining image and caption information which allows the model to capture relevant context
- Achieved state-of-the-art results on multiple datasets

Learning Semantic Sentence Embeddings using Pair-wise Discriminator

COLING 2018 PDF

- Proposed a novel method for obtaining sentence-level embeddings by solving the paraphrase generation task
- Introduced a sequential pair-wise discriminator to obtain semantic and relevant sentence embeddings
- Obtained state-of-the-art results on the task of paraphrase generation and sentiment analysis

Bayesian Techniques For Question Generation

CVPR 2019 (UNDER REVIEW)

- Developed a bayesian architecture to procure embeddings for various image related cues
- Proposed a principled approach to combine these embeddings and generate diverse questions
- Obtained state-of-the-art results on the task of question generation on standard datasets

Internships

Interpretable Visual Dialog

March 2018 - Present

RESEARCH INTERNSHIP WITH PROF. DEVI PARIKH

- Analysed Visual Dialog models with the help of GradCAM visualisations
- Adopted a Multi-Task learning setting with Question reconstruction as the auxiliary task for dialog

Video Completion with Deep Learning

Dec 2017 - Jan 2018

RESEARCH INTERNSHIP AT NVIDIA GRAPHICS BANGALORE

- Built a convolutional generative adversarial network for video generation
- Used multiple discriminators to ensure temporal and spatial consistency of videos

Projects

Mitigating Annotation Costs in legal domain

Oct 2017 - Jan 2018

COURSE PROJECT AT IIT KANPUR

- Designed a novel algorithm to annotate legal documents in an information retrieval setup
- Eliminated human effort at test time without significantly affecting the performance

Honors & Awards

- 2015 Among top 5% in JEE Advanced 2015 and top 0.1% in JEE Mains 2015.
- 2015 Secured 96.4 % in Higher Secondary Examination
- 2014 Scholar Kishore Vaigyanik Protsahan Yojana (KVPY), National Talent Search Examination (NTSE)

Relevant Courses

Machine learning Techniques
Applied Stochastic Processes

Data Structures & Algorithms
Probability & Statistics

Linear Algebra
Time Series Analysis

Technical Skills

Languages: Python, C++, C, Lua, MATLAB, R **Tools :** \LaTeX , MELD, GIT **DL Frameworks :** Torch, PyTorch