Amrit Singhal

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Education

- **Carnegie Mellon University** — Pittsburgh, PA
  Master of Science in Machine Learning, Current GPA: 4.11/4.0+ — December 2020 (expected)
- **Indian Institute of Technology Kanpur** — Kanpur, India
  Bachelor of Technology in Computer Science and Engineering, Cumulative GPA: 9.7/10.0 — June 2019

Technical Strengths and Software Proficiency

- **Programming Languages:** *Advanced:* Python *Intermediate:* C/C++, Bash *Basic:* Java, C#, MIPS
- **Libraries:** TensorFlow, PyTorch, Keras, Scikit-learn, ARCore, TensorFlow Serving, Flask
- **Softwares and Tools:** LaTeX, Unity3D, Matlab, SQL, MongoDB, Solidworks, Android Studio.
- **Languages:** English (Fluent), Hindi (Native Speaker)

Professional Experience

1. **BEL Research Lab, Adobe Systems Private Limited** — Bangalore, India
   Research Internship: Augmented Reality Authoring (May '18 - Jul '18)
   - Developed a novel end-to-end interface to perform **easy authoring of Augmented Reality experiences from natural language input**, allowing visualization of any text in Augmented Reality.
   - Introduced novel methods for scene graph augmentation that allowed inference of objects for the surroundings.
   - **Publication** ARComposer: Authoring Augmented Reality Experiences through Text
     UIST '19 - The Adjunct Publication of the 32nd Annual ACM Symposium on User Interface Software and Technology
   - **Patent** Visualizing Natural Language through 3D Scenes in Augmented Reality; US16/247235; Filed Jan 2019
2. **Hike Private Limited, National Headquarters** — New Delhi, India
   Internship: Language independent Text-to-Emotion Neural Network Classification (May '17 - Jul '17)
   - Developed and tested multiple neural network models using Tensorflow to assign an emotion to any input text.
   - Developed a Language-Classifier to segregate a collection of chats in Latin script into the different languages.

Academic and Research Projects

1. **Query Dependant Multi-Document Summarization** *[Project Report]* (Aug '18 - Dec' 18)
   Project Supervisor: Prof. Arnab Bhattacharya, Department of Computer Science and Engineering, IIT Kanpur
   - Devised a novel pipeline to perform faster query-biased multi-document abstractive summarization.
   - Examined and salvaged multiple techniques together for efficient passage retrieval incorporating the query bias.
   - Analyzed existing methods for abstractive summarization through seq2seq networks, pointer-generator networks and reinforcement learning based models, and added a query bias to the summarisation techniques.
2. **NYC Taxi Travel Time Prediction through Leveraging Geographical Information** (Aug '19 - Dec '19)
   Course Project: 10-701 Introduction to Machine Learning, CMU *[Project Report]*
   - Introduced a method of leveraging known geographical separations to better estimate travel times in New York city
   - Developed multiple models using XGBoost trees and neural networks, and combined them to give total prediction
3. **Cross Modal Media Retrieval** (Jan '18 - May '18)
   Project Supervisor: Prof. Medha Atre, Department of Computer Science and Engineering, IIT Kanpur
   - Utilized the emotional information present in images and audios to perform cross-modal media retrieval.
   - Implemented a neural network model to extract emotion values from images using the circumplex model.
   - Proposed and developed two approaches to transfer the information from different modalities into the same space - a statistical approach using Procrustes analysis, and a joint learning approach using a non-linear loss function.
4. **Reviewer Recommendation for Conference Paper Submissions** *[Project Report]* (Aug '17 - Nov '17)
   Project Supervisor: Prof. Purushottam kar, Department of Computer Science and Engineering, IIT Kanpur
   - Surveyed various techniques for automated paper-reviewer assignment like the Toronto Paper Matching System, and the Robust Paper-Reviewer Assignment Model, and implemented multiple modifications over them.

Relevant Courses

- **Courses at CMU:** Deep Reinforcement Learning and Control (A+), Probability and Statistics (A), Introduction to Machine Learning (A), Advanced Machine Learning, Advanced Deep Learning, Machine Learning for Large Datasets
- **Courses at IIT Kanpur:** Probabilistic Modelling and Inferences (CS698X), Computational Cognitive Science (CS786), Visual Recognition (CS783), Natural Language Processing (CS671), Introduction to Machine Learning (CS771), Information Retrieval (CS657), Advanced Algorithms (CS345), Data Structures and Algorithms (ESO207)

Honors and Activities

1. Teaching Assistant, Deep Reinforement Learning and Control (10-403), MLD, CMU (Jan '20 - present)
2. Recipient of **Academic Excellence Award** from the institute at IIT Kanpur for 2016, 2017 and 2018.
3. Tutor, Fundamentals of Computing (ESC101A), CSE, IIT Kanpur. (Jan '19 - Apr '19)
4. Teaching Assistant, Data Structures and Algorithms (ESO207), CSE, IIT Kanpur. (July '18 - Dec '18)
5. Academic Mentor, Fundamentals of Computing (ESC101), Counselling Service, IIT Kanpur (Jun '16 - May '17)