# Tanmaya Shekhar Dabral

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## Education

**Carnegie Mellon University – School of Computer Science** Pittsburgh, USA
*Master of Science, Computer Science; GPA: 4.22* *2018 – Dec 2019 (expected)*

**Coursework:** Introduction to Computer Systems, Introduction to Machine Learning (PhD), Introduction to Deep Learning, Probability and Mathematical Statistics

**Birla Institute of Technology and Science** Hyderabad, India
*B.E.(Hons), Computer Science; GPA: 9.84/10 (Distinction)* *2014 – 2018*

## Skills

**Languages**: C++, Python, Java, C

**Tools**: Numpy, PyTorch, OpenCV

## Experience

**Adobe Systems Incorporated** Bangalore, India
*Product Intern* *Jan 2018 - July 2018*

- Designed local **query caching** mechanisms for an Elasticsearch-based service.
- Implemented proof-of-concepts for the same, building upon existing Adobe technologies.

**Nanyang Technological University** Singapore
*Summer Intern, Multimedia Lab* *May 2017 - July 2017*

- Developed a Dynamic Time Warping-based system to generate a single representative query from multiple queries for **audio search**.
- It yielded a **6.6x performance** increase compared to running individual queries, while suffering only a decrease of 0.0075 in the MAP score on the Switchboard dataset.

**Indira Gandhi Centre for Atomic Research** Kalpakkam, India
*Summer Intern* *April 2016 - July 2016*

- Designed and implemented a novel, stochastic variant of the Particle Swarm Optimization algorithm for **ontology alignment**.
- Average **F-measure increase of 0.057** on the OAEI 2008 benchmark compared to previous attempts using PSO.

## Academic Projects

**Carnegie Mellon University – School of Computer Science** Pittsburgh, USA

- **Ensemble-based Doodle Recognition** **Fall 2018**
  Developed a CNN-RNN ensemble for recognizing doodles which exploited the temporal nature of the pen strokes as well as the spatial nature of the images, getting a **MAP@3 score of 0.917** on the Quick, Draw! dataset.
- **Attention-based End-to-End Speech Recognition** **Fall 2018**
  Designed and implemented a key-value attention-based sequence-to-sequence model for end-to-end speech recognition, which achieved an **average edit distance of 9.81** on the Wall Street Journal corpus.
- **Time Series Modeling for Music Generation** **Fall 2018**
  Investigated a number of generative models for musical data ranging from Markov chains to RNN's and developed and explored a number of different symbolic representations of music for this purpose.

**Birla Institute of Technology and Science** Hyderabad, India

- **Automatic Music Tagging Using a Multi-Scale CNN** **Spring 2017**
  Developed a deep convolutional neural network for music tagging that takes into account the multi-scale nature of musical features, yielding an **ROC AUC score of 0.899** on the MagnaTagATune dataset.

## Publications and Conference Presentations

Tanmaya S. Dabral, Amala S. Deshmukh, Aruna Malapati, 2017. A Multi Scale Convolutional Neural Network Architecture For Music Auto-Tagging, The 7th International Conference on Soft Computing for Problem Solving

Tanmaya Shekhar Dabral, N. Madurai Meenachi, Vidya Sundararajan, M. Sai Baba. A Variant of the Particle Swarm Optimization for Ontology Alignment, the 10th National Conference on Recent Advances in Information Technology, 2016 (Poster presentation)