

# ANIL K. BATRA

## PhD Student

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## RESEARCH EXPERIENCE

### CDT-NLP PhD Student

#### School of Informatics, University of Edinburgh

Sept 2020 – Aug 2024 (Expected) Edinburgh, UK

Supervisors : Dr. Laura Sevilla & Prof. Frank Keller

- Localizing and Summarizing events of sequential processes in videos.

### Research Engineer

#### Pro @ Facebook

Jan 2019 – May 2020

Gurugram, IN

- Explored different neural architectures and semi/weak supervised methods to extract buildings from satellite images.
- Implemented large scale representation learning flow for satellite images.
- Implemented distributed learning workflows for large scale training to extract road topology from noisy labeled data and deployed to OSM Maps.

### Research Assistant

#### IIIT Hyderabad (CVIT)

Jan 2016 – Dec 2018

Hyderabad, IN

Team : Prof. C.V. Jawahar (CVIT), Suriya Singh (MILA), Guan Pang (Facebook), Saikat Basu (Facebook), Manohar Paluri (Facebook)

- Working under the guidance of Prof. C.V. Jawahar and team on the development of knowledge sharing algorithms for the analysis of satellite images with less labeled data.

### Mentor

#### Talent Sprint/IIIT Hyderabad

Jan 2018 – Apr 2018

Hyderabad, IN

- Mentored industrial professional in lab sessions by explaining the concepts of AI & ML in 12 weeks course.

## PROJECTS

### Improved Road Connectivity in an End-to-End Network CVPR 2019

- Design a novel task to impose connectivity constraints to extract the topological correct road network from satellite images.
- Proposed a multi-task learning architecture to effectively boost the road connectivity.
- Proposed a connectivity refinement model to recursively connect the broken road segmentation.

### Self Supervised Feature Learning for Semantic Segmentation of Overhead Images

#### BMVC 2018

- Improve semantic segmentation of different tasks (Land Classification, road network estimation and scene parsing) by learning a proxy task of image in-painting.
- Develop an adversarial training scheme to dynamically increase the difficulty of proxy task, leading to better segmentation

## EDUCATION

### M.S. in Computer Science

#### IIIT Hyderabad

Jan 2016 – Jul 2019

CGPA : 8.44/10

### B.Tech in Electronics & Communication

#### Punjab Technical University

Jul 2003 – May 2007

CGPA : 8.38/10

## SKILLS

Python  
C#  
PyTorch  
TensorFlow  
FastAI  
Caffe  
OpenCV  
C/C++  
CUDA






## OTHER SKILLS

LaTeX JavaScript MATLAB HTML  
Sitecore SharePoint SQL GO  
Tensorflow TensorBoardX

## COURSE WORK

Computer Vision NLP Pragmatics  
Computer Graphics Linguistics Syntax  
Digital Image Processing  
Artificial Neural Networks  
Optimization Methods  
Statistical Methods in AI  
Topics in ML (RL basics)

## ACHIEVEMENTS

-  **Gold Medalist**  
in Bachelor of Technology, 2007.
-  **Qualified GATE 2009**  
in ECE with 99.4%tile with All India Rank 254.
-  **Qualified GATE 2010**  
in ECE with 99.2%tile with All India Rank 747.

## Multimodal Procedural Learning using WikiHow articles

### CDT - NLP Project

- Study to investigate the role of visual information to learn the procedures using pairwise comparison of steps of WikiHow articles.

## Motion Field Estimation in image sequence

### DIP Course Project

- Study and analysis of edge flow in images to estimate the flow of different objects. In the course project, I use discrete Markov Random Field (MRF) to extract the motion of each object from synthetic and natural image sequence.

## Topic Models for Image Annotation & Text Illustration

### SMAI Course Project

- Study and use Latent Dirichlet Allocation model to describe and annotate images from vast resources of freely available web documents with images.

## PUBLICATIONS

### Conference Proceedings

- A. Batra, S. Singh, G. Pang, S. Basu, C.V. Jawahar, and M. Paluri. "Improved Road Connectivity by Joint Learning of Orientation and Segmentation". In: CVPR 2019,
- S. Singh, A. Batra, G. Pang, L. Torresani, S. Basu, M. Paluri, and C.V. Jawahar. "Self-supervised Feature Learning for Semantic Segmentation of Overhead Imagery". In: BMVC, 2018.

## INDUSTRIAL EXPERIENCE

### Sr. Data Scientist, ESRI

 May 2020 – Sep 2020

 New Delhi, IN

- Improve Road prediction models and implemented my CVPR work in ESRI framework of arcgis-python.

### Sr. Consultant, Deloitte

 Feb 2015 – Sep 2017

 Hyderabad, IN

- Business requirement gathering, estimation and solution designing.
- Supervise team members and oversee their professional developments.
- Product Support, incident, change and risk management.

### Sr. Associate Platform L1, Sapient

 March 2010 – Jan 2015

 Gurgaon, IN

- Technical impact analysis and solution designing.
- Design and customize web based Content Management applications.

### Sr. Associate Technology, Sapient (Client - Department Of Health)

 Jan 2013 – Apr 2014

 London, UK

- Coordinate with client teams for deployment and future enhancements.
- Design, customize and maintain applications in Microsoft Technology stack.

### Software Engineer, Mahindra Satyam

 Oct 2007 – Sep 2009

 Gurgaon, IN

- Trained on Microsoft .Net, Data Structures, C++
- Design sequence diagrams, low level design documents and develop front end HTML web pages with JavaScript.

## CERTIFICATES

ML Course By Andrew Ng, Coursera

Scrum Master

## PERSONAL DETAILS

D.O.B. : Dec. 21, 1985  
Marital Status : Married  
Languages : English, Hindi, Punjabi  
Nationality : Indian

## REFERENCES

Available on Request