

# Chitwan Saharia

AI Resident, Google Brain, Toronto

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## Education

### B.Tech. with Honors in Computer Science and Engineering

*Indian Institute of Technology, Bombay, India*

2015-19

## Interests

Natural Language Processing, Generative Models, Reinforcement Learning

## Professional Experience

### Google Brain

AI Resident

Toronto

Oct 2019 - Current

- Spending most of my time doing research and learning from my mentors and peers.
- Research Areas: Sequence generative models, Retrieval models, Few Shot learning.

### Mila

Research Intern

Montreal

May 2018 - August 2018

- Worked on creating benchmarks for Grounded Language Learning (BabyAI Project).
- Advised by Prof. Yoshua Bengio, and Dzmitry Bahdanau.
- Research Areas: Imitation Learning, Goal Conditioned RL.

### Mila

Research Intern

Montreal

May 2017 - August 2017

- Worked on sequence to sequence hierarchical dialog models.
- Advised by Prof. Yoshua Bengio.
- Research Areas: Language Models, Seq2Seq Models.

## Publications

### ○ Non-Autoregressive Machine Translation with Latent Alignments

*Chitwan Saharia\**, William Chan\*, Saurabh Saxena, Mohammad Norouzi  
*Empirical Methods in Natural Language Processing (EMNLP)*, 2020

### ○ Imputer: Sequence Modelling via Imputation and Dynamic Programming

William Chan, *Chitwan Saharia*, Geoffrey Hinton, Mohammad Norouzi, Navdeep Jaitly  
*International Conference on Machine Learning (ICML)*, 2020

### ○ Combating False Negatives in Adversarial Imitation Learning for Instruction Following

K. Zolna\*, *Chitwan Saharia\**, L Boussioux\*, David H, Maxime CB, D Bahdanau, Yoshua Bengio  
*AAAI Conference (Student Abstract Track)*, 2020  
*NeurIPS Deep Reinforcement Learning Workshop*, 2020

### ○ A Tale of Two Modalities for Video Captioning

P. Joshi\*, Chitwan Saharia\*, Vishwajeet Singh, D. Gautam, G. Ramakrishnan, P. Jyothi  
*Workshop on Multi-modal Video Analysis & Moments in Time Challenge, ICCV, 2019*

- **BabyAI: First Steps Towards Grounded Language Learning With a Human In the Loop**  
Maxime CB, Dzmitry Bahdanau, Salem L, Lucas W, Chitwan Saharia, Thien HN, Yoshua Bengio  
*International Conference on Learning Representations (ICLR) 2019*

## Other Research Experiences

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### Bachelor's Thesis [Talk]

Advisors : Prof. Preethi Jyothi and Prof. Ganesh Ramakrishnan

IIT Bombay

August 2018 - May 2019

- Analyzed the role of audio and visual modalities in Video Captioning.
- Research Areas: Video Captioning, Hierarchical sequence models.

### R&D Project [Report]

Advisor : Prof. Suyash Awate

IIT Bombay

August 2018 - December 2018

- Analyzed impact of calibration techniques on cell segmentation tasks.
- Research Areas: Calibration in Neural Networks, Uncertainty Estimations.

### Seminar [Report]

Advisor : Prof. Pushpak Bhattacharyya

IIT Bombay

January 2018 - April 2018

- Explored the literature on machine learning and rule based models for sentiment analysis.
- Research Areas: Sentiment Analysis

## Scholastic Achievements

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- Secured All India Rank 148 in IIT JEE Examination (2015) among 150 thousand candidates.
- Secured 99.9 percentile in JEE-Main (2015) out of 1.5 million candidates.
- Recipient of Kishore Vaigyanik Protsahan Yojna Fellowship instituted by the Department of Science and Technology, Govt. of India.

## Positions of Responsibility

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- **Teaching Assistant**
  - Object Oriented Programming at IIT BombayX
  - Computer Programming at IIT Bombay
- **Reviewer**
  - International Conference on Learning Representations (ICLR), 2021

## Relevant Academic Coursework

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- **Machine Learning** - Foundations of Machine Learning, Automated Speech Recognition, Probabilistic Graphical Models, Digital Image Processing, Foundations of Intelligent Learning Agents, Artificial Intelligence, Data Analysis and Interpretation.
- **Mathematics** - Calculus, Linear Algebra, Differential Equations, Numerical Analysis.
- **Computer Science** : Discrete Structures, Data Structure and Algorithms, Database Systems, Operating Systems, Implementation of Programming Languages, Automata Theory.