

Shubham Toshniwal

PhD Student, TTI Chicago

✉ shtoshni@ttic.edu 🌐 shtoshni92 🏠 ttic.edu/~shtoshni/

Research Areas Natural Language Understanding, Coreference Resolution, Speech Recognition, Deep Learning

Education **Toyota Technological Institute at Chicago (TTIC)**

Ph.D., Computer Science, 2015–2021 (expected)

Advisors: Kevin Gimpel, Karen Livescu

M.S., Computer Science, 2015–2017

Advisor: Karen Livescu

Indian Institute of Technology Kanpur (IITK)

B.Tech., Computer Science, 2009–2013

Industry

Google Research, San Francisco

Grounded Language Representation Learning

Software Engineering Intern, June–Sep 2018

Daniel Gillick, Alessandro Presta

Google Research, New York

Multilingual Speech Recognition

Software Engineering Intern, June–Sep 2017

Tara Sainath, Ron Weiss

IBM Research, New Delhi

Dialoging, Question Template Extraction, etc.

Software Engineer, 2013–2015

Jitendra Ajmera, Sachindra Joshi

Preprints

Learning Chess Blindfolded: Evaluating Language Models on State Tracking

Shubham Toshniwal, Sam Wiseman, Karen Livescu, Kevin Gimpel

arXiv:2102.13249

Publications

Learning to Ignore: Long Document Coreference with Bounded Memory Neural Networks

Shubham Toshniwal, Sam Wiseman, Allyson Ettinger, Karen Livescu, Kevin Gimpel

EMNLP 2020 (short)

PeTra: A Sparsely Supervised Memory Model for People Tracking

Shubham Toshniwal, Allyson Ettinger, Kevin Gimpel, Karen Livescu

ACL 2020

A Cross-Task Analysis of Text Span Representations

Shubham Toshniwal, Haoyue Shi, Bowen Shi, Lingyu Gao, Karen Livescu, Kevin Gimpel

Workshop on Representation Learning for NLP (RepL4NLP) 2020

Pre-trained Text Embeddings for Enhanced Text-to-Speech Synthesis

Tomoki Hayashi, Shinji Watanabe, Tomoki Toda, Kazuya Takeda, Shubham Toshniwal, Karen Livescu

Interspeech 2019

A Comparison of Techniques for Language Model Integration in Encoder-Decoder Speech Recognition

Shubham Toshniwal, Anjuli Kannan, Chung-Cheng Chiu, Yonghui Wu, Tara N Sainath, Karen Livescu

SLT 2018

Parsing Speech: A Neural Approach to Integrating Lexical and Acoustic-Prosodic Information

Trang Tran, Shubham Toshniwal*, Mohit Bansal, Kevin Gimpel, Karen Livescu, Mari Ostendorf*

NAACL HLT 2018 (*Oral*)

Multilingual Speech Recognition With A Single End-To-End Model

Shubham Toshniwal, Tara N. Sainath, Ron J. Weiss, Bo Li, Pedro Moreno, Eugene Weinstein, Kanishka Rao

ICASSP 2018 (*Oral*)

Multitask Learning with Low-Level Auxiliary Tasks for Encoder-Decoder Based Speech Recognition

Shubham Toshniwal, Hao Tang, Liang Lu, Karen Livescu

Interspeech 2017 (*Oral*)

Jointly Learning to Align and Convert Graphemes to Phonemes with Neural Attention Models
Shubham Toshniwal, Karen Livescu
SLT 2016

Old Preprints

Hierarchical Multitask Learning for CTC-based Speech Recognition
Kalpesh Krishna, *Shubham Toshniwal*, Karen Livescu
arXiv:1807.06234

Patents

System and method for cognitive filtering of audio in noisy environments
Jitendra Ajmera, Nitendra Rajput, Saurabh Srivastava, *Shubham Toshniwal*
US Patent No. 10,187,738 B2, issued January 22, 2019

Generating natural language dialog using a questions corpus
Jitendra Ajmera, Ajay K. Gupta, Sachindra Joshi, *Shubham Toshniwal*
US Patent No. 10,049,152 B2, issued August 14, 2018

Visual Information Processing Allocation between a Mobile Device and a Network
Anirban Majumder, Samik Datta, Sharad Jaiswal, Nisheeth Shrivastava, Sreedal Menon, *Shubham Toshniwal*
US Patent No. 8,913,838 B2, issued December 16, 2014

Services

Reviewer: ICLR 2021, SLT 2020, RepL4NLP 2020, NIPS 2018, EMNLP 2018, CoNLL 2017
RepL4NLP 2018, EURASIP
Co-organizer of Speech & Language Reading group at TTIC (SLATTIC) from 2018-2021
Co-organizer of Student Workshop 2019 at TTIC

Media Coverage

Work on multilingual speech models has been covered in several Google AI blogs [1, 2]
Featured in the first episode of PyTorch Lightning Community Spotlight to discuss work on chess LMs
Work on Usher, an intelligent museum guide application, featured in **MIT Technology Review**

Awards

Developed *Usher*, an intelligent museum guide mobile application, that won several internal IBM awards
All India Rank 13 in IIT-JEE 2009 among 400,000 candidates
All India Rank 1 in UPTU-SEE 2009 among 300,000 candidates

Miscellaneous

Our models released on HuggingFace have been **downloaded more than 100K times** [Link]
Contributed to the Lingvo framework by Google

Teaching

Teaching Assistant, Fall 2017
TTIC 31020, Introduction to Statistical Machine Learning

Coursework

Speech Technologies, Natural Language Processing, Probabilistic Graphical Models
Introduction to Statistical Machine Learning, Advanced Natural Language Processing
Unsupervised Learning and Data Analysis, Dynamical Systems with Applications