

# Shubham Toshniwal

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Toyota Technological Institute at Chicago (TTIC)  
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Research Areas Speech Processing, Natural Language Processing, Deep Learning, Machine Learning

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

Ph.D., Computer Science, 2015–  
Adviser: Karen Livescu

M.S., Computer Science, 2015–17  
Adviser: Karen Livescu  
GPA: 4.0/4.0

**Indian Institute of Technology Kanpur (IITK)**

B.Tech., Computer Science, 2009–13.  
GPA: 9.1/10.0

Experience

**Google Research, San Francisco**

Mentored by Daniel Gillick, Alessandro Presta  
Learning grounded sentence representation

Research Intern, June–Sep 2018

**Google Research, New York**

Mentored by Tara Sainath, Ron Weiss  
End-to-End multilingual speech recognition models

Research Intern, June–Sep 2017

**IBM Research, New Delhi**

Mentored by Jitendra Ajmera, Sachindra Joshni  
Worked on projects concerning natural language dialoging

Software Engineer, 2013–15

**Bell Laboratories, Bengaluru**

Mentored by Anirban Majumder  
Worked on building a mobile-and-cloud based object detection system

Research Intern, May–July 2012

Publications

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  
IEEE Workshop on Spoken Language Technology (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  
IEEE Workshop on Spoken Language Technology (SLT) 2016

USHER: An Intelligent Tour Companion  
*Shubham Toshniwal*, Parikshit Sharma, Saurabh Srivastava, Richa Sehgal  
International Conference on Intelligent User Interfaces (IUI) 2015

VibRein: An Engaging and Assistive Mobile Learning Companion for Students with Intellectual Disabilities  
*Shubham Toshniwal*, Prasenjit Dey, Nitendra Rajput, Saurabh Srivastava  
Australian Conference on Human-Computer Interaction (OzCHI) 2015

## Preprints

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

## Patents

Visual Information Processing Allocation between a Mobile Device and a Network  
Anirban Majumder, Samik Datta, Sharad Jaiswal, Nisheeth Shrivastava, Sreedal Menon,  
*Shubham Toshniwal*

U.S. Patent No. 8,913,838 B2, issued December 16, 2014

Generating natural language dialog using a questions corpus

Jitendra Ajmera, Ajay K. Gupta, Sachindra Joshi, *Shubham Toshniwal*

U.S. Patent No. 10,049,152 B2 issued August 14, 2018

## Service

Reviewer

NIPS 2018, EMNLP 2018, CoNLL 2017, TASLP, EURASIP, RepL4NLP 2018

## Teaching

Teaching Assistant, Fall 2017

TTIC 31020, Introduction to Statistical Machine Learning

## Selected Awards

All India Rank 13 in IIT-JEE 2009 among 400,000 candidates

Received Academic Excellence Award for academic year 2009–10

Developed *Usher*, an intelligent museum guide mobile application, that won several internal IBM awards, such as Best Cognitive Application, and featured in *MIT Technology Review*

All India Rank 1 in UPTU-SEE 2009 among 300,000 candidates

Travel Grant for Interspeech 2017

## 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