Han **Guo**

hanguo@cs.unc.edu | han-guo.info | HanGuo97

Education

University of North Carolina at Chapel Hill — *Chapel Hill, NC*

B.S. in Computer Science and Statistics — *2016 - Exp. 2020*

- **GPA** 3.8
- **Advisor** *Prof. Mohit Bansal (UNC-NLP Lab)*
- **Notable UNC Coursework:** Natural Language Processing (graduate), Statistical Machine Learning, Algorithm Analysis, Advanced Data Analysis, Simulation For Analytics, Optimization, Probability, Linear Algebra, Database, Data Structures, Web Programming.
- **Notable Independent Coursework:** Natural Language Processing (Stanford CS224), Computer Vision (Stanford CS231), Reinforcement Learning (UCL COMPM050), Deep Reinforcement Learning (Berkeley CS294).

Publications

Multi-Source Domain Adaptation for Text Classification via DistanceNet-Bandits
Han Guo, *Ramakanth Pasunuru, and Mohit Bansal.*
To appear in the Proceedings of ***AAAI 2020****, New York, NY.*

AutoSeM: Automatic Task Selection and Mixing in Multi-Task Learning [slides] [pdf]
Han Guo, *Ramakanth Pasunuru, and Mohit Bansal.*
Proceedings of ***NAACL 2019****, Minneapolis, MN. (Oral)*

Dynamic Multi-Level Multi-Task Learning for Sentence Simplification [pdf]
Han Guo, *Ramakanth Pasunuru, and Mohit Bansal.*
Proceedings of ***COLING 2018****, Santa Fe, New Mexico.* ***("Area Chair Favorites" Paper Award)***

Soft, Layer-Specific Multi-Task Summarization with Entailment and Question Generation [pdf]
Han Guo*, Ramakanth Pasunuru*, and Mohit Bansal.*
Proceedings of ***ACL 2018****, Melbourne, Australia.*

Interactive-Length Multi-Task Video Captioning with Cooperative Feedback [link]
Han Guo, *Ramakanth Pasunuru, and Mohit Bansal.*
Proceedings of ***NeurIPS 2017****, Long Beach, CA (demo papers).*

Towards Improving Abstractive Summarization via Entailment Generation [pdf]
Ramakanth Pasunuru, ***Han Guo****, and Mohit Bansal.*
Proceedings of ***Workshop on Summarization Frontiers, EMNLP 2017****, Copenhagen, Denmark.*

Experience

Research Intern — *Sunnyvale, CA*

Baidu Research — *2019.5 - 2019.8*

- Advisor: Dr. Boyang Li
- Developing machine learning system for novel-object image captioning.

Research Assistant — *Chapel Hill, NC*

UNC Department of Computer Science — *2017.4 - PRESENT*

- Advisor: Prof. Mohit Bansal
- Developed machine learning systems for improving textual generation/classification models using Gaussian process, multi-armed bandit, and multi-task learning (Python, TensorFlow, Shell, Docker, Kubernetes, SLURM, Singularity, MongoDB, ZeroMQ).
- Developed interactive demonstrations of state-of-the-art NLP models exhibited at NIPS-2017 and various CS-department out-reach events (Python, TensorFlow, Javascript, HTML, CSS).

Research Assistant — *Chapel Hill, NC*

UNC Department of Mathematics — *2017.2 - 2017.6*

- Advised by Dr. Feng Shi on data analytics on Wikipedia Talk Dataset and Amazon Book Review.
- Parsed Wikipedia talk page dump (100GB+), and used TF-IDF, logistic regression and multi-layer perceptron for sentiment analysis, with computations parallelized across multiple machines (200+) (Python, TensorFlow, SLURM).
- Used fastText/GloVe word-vectors and t-SNE to visualize the evolution of conversation in Wikipedia Talk Page (Python, Tableau).

Undergraduate Learning Assistant — *Chapel Hill, NC*

UNC Department of Computer Science — *2017.2 - 2017.5*

- Held office hours and provided assistance to students taking COMP116 "Introduction to Scientific Computing" course (MATLAB).

Awards/Honors

2019.12 **Finalist, 2020 CRA Outstanding Undergraduate Researchers**

2019.9 **Phi Beta Kappa**

2019.8 **WeCNLP Travel Grant**
Travel award for attending the second annual West Coast NLP (WeCNLP) Summit.

2019.1 **Honorable Mention, 2019 Computing Research Association Outstanding Undergraduate Researchers**
This award program recognizes undergraduate students in North American colleges and universities who show outstanding research potential in an area of computing research.

2018.6 **Area Chair Favorites Paper Award, COLING 2018**
Papers that were nominated by reviewers and recognised as excellent by chairs.

2018.5 **ACL Travel Award**
Travel award from a National Science Foundation Grant, and the ACL Walker Fund, for presenting at ACL 2018.

2017.11 **OUR Travel Award**
Travel award from the Office of Undergraduate Research for presenting at NeurIPS 2017.

Skills

Proficiency in Python, TensorFlow, Shell, R, Docker, Kubernetes, SLURM, Singularity, Git.
Familiarity in PyTorch, MATLAB, HTML, CSS, JavaScript, Java, SQL, C, Tex, MongoDB, ZeroMQ, Tableau.

Other Projects

tf-library [link]

- Developed a Python library (with more than 10K lines of Python code) that implements various deep learning models (Transformer, Pointer Network, DDPG, etc), flexible base modules (extensions of Deepmind's sonnet.modules, etc) and utility functions (simple multi-GPU grid-search hyper-parameter tuning, etc) in TensorFlow with unit-tests and Docker integration.

UNC-NLP Group Page [link]

- Developed the webpage for our UNC-NLP research group (Javascript, HTML, CSS, Bootstrap).

Image Captioning [link]

- Implemented the image captioning model "Show, Attend and Tell" using TensorFlow and matched the results of the original work.

Image Style Transfer Using Deep Learning [link]

- Used convolutional neural networks to stylize an image using the style of another image
- Wrote a *blog post* on the image style transfer.

Twitter Bot [link]

- Used Python and Twitter API to implement simple Twitter bot that reads tweet feeds from my personal account, and retweet relevant tweets based on various text classification tools from Google Cloud Engine.

Other Experience

Professional Service

2019 - Present

- Reviewer, Conference on Computational Natural Language Learning (CoNLL) 2019

Live Demonstrations and Outreach

2017 - 2019

- Developed interactive demonstrations for our research projects, including video-to-text captioning system and sentence simplification system.
- Presented the demos at NIPS-2017 conference, UNC Science Expo, and UNC Middle/High School Demo Day.

Data Analytics

2015 - 2016

- Worked in 10-member group, and collected over 1,800 data on performance indicators of high school student organizations in Shanghai, China.
- Performed basic data analytics, and visualized the results using Tableau and R.
- Presented the final work online and in high schools / events, and received 3,000+ page views (online) and 300 audience (offline).

Leadership Experience

2014 - 2016

- Chaired the student organization Tuck In from 2014.7 to 2015.12.
- Tuck In initiated 9 events, achieved in total 1700 attendees, brought art education to around 200 kids, and made donation (5,000 RMB) to local education institution and NGO in Kenya. Tuck In was reported by Liberation Daily, Shanghai News, Shanghai Student Post, Eastday, etc.
- Volunteered in Kenya, taught science to kids, built their school and houses, and carried water for local residents.

Public Speaker

2015 - 2016

- Invited speaker as Tuck In chair at 6 middle schools, university, TEDx Weiyu, Citic Bank, Hugh O'Brian Youth Leadership China seminar, etc.
- Invited guest at Shanghai Media Group.