

Trang Tran

185 Stevens Way, Box 352500
Seattle, WA 98195

ttmt001@uw.edu
ttmt001.github.io

RESEARCH INTERESTS Computational modeling of prosody for spoken language understanding, applications of language technology to health, education, social science

EDUCATION **University of Washington**, Seattle, WA Jun 2014 - present
PhD Candidate, Electrical Engineering

Bucknell University, Lewisburg, PA
M.S., Electrical Engineering Aug 2012 - May 2014

- Thesis: *Noise-robust Voice Conversion*

B.S., Electrical Engineering and *B.A.*, Economics Aug 2007 - May 2012

RESEARCH EXPERIENCE **Graduate Research Assistant** Jun 2014 - present
University of Washington, Electrical & Computer Engineering, Seattle, WA

- **Neural Prosody Models for Spoken Language Processing**
 - Developing prosody and speaker models for dialog act prediction
 - Developed a new convolutional neural network architecture for integrating prosodic features with a parser for conversational speech, achieving gains over strong text-only baselines
 - Studied the effects of read vs. conversational speech in parsing performance, demonstrating style differences in speaker use of prosody
 - Analyzed the utility of prosodic features for correcting parse errors, finding most benefits in disfluent regions and constituent attachment errors
 - Analyzed the effects of transcription errors on parsing performance, showing a non-negligible effect of transcription errors on the effective use of prosody
- **Characterization and Detection of Online Community Language and Online Community Endorsement**
 - Developed style and topic models for characterizing language of Reddit discussions, demonstrating that community endorsement is more correlated with style than topic
 - Contributed to the development of metrics and features for detecting community endorsement on Reddit discussions
- **Acoustic-Prosodic Cues to Oral Reading Intelligibility and Difficulty**
 - Investigated lexical difficulty features for text simplification based on analysis of reading by low-literacy adults and anomalies in prosodic and duration cues
 - Studied acoustic models of stress for use in language acquisition and intelligibility scoring

Research Intern

Jun 2018 - Sep 2018

Liulishuo/LingoChamp, San Mateo, CA

- **Modeling Prosody for Second Language Learning**

- Explored computational models for integrating acoustic-prosodic information (seq2seq vs. transformer architectures) in parsing for a second-language learning application
- Analyzed differences in native vs. non-native speech effects on parsing results, finding little correlation between parse scores and proficiency based on repeated speech

Applied Scientist Intern

Jun 2017 - Aug 2017

Amazon Alexa Shopping Team, Seattle, WA

- **Ranking Models for Amazon’s Choice**

- Explored ranking algorithms and developed novel models for selecting Amazon’s Choice items
- Analyzed the utility of language features applied to Amazon’s Choice ranking models

Visiting Graduate Intern

Jun 2016 - Sep 2016

Toyota Technological Institute at Chicago (TTIC), Chicago, IL

- **Syntactic Constituent Parsing of Speech**

- Developed a many-to-one encoder-decoder neural network for constituency parsing of conversational speech, using both transcripts and acoustic features

Graduate Research Assistant

Aug 2012 - May 2014

Bucknell University, Electrical and Computer Engineering, Lewisburg, PA

- **Speech Enhancement and Voice Conversion using Inventory Style Approaches**

- Explored filter- and inventory-based speech enhancement, demonstrating better perceptual quality from inventory-based methods
- Developed an inventory-based noise-robust voice conversion system

PUBLICATIONS

- **Trang Tran**, Jiahong Yuan, Yang Liu, Mari Ostendorf. 2019, “On the Role of Style in Parsing Speech with Neural Models.” In *Proc. Interspeech*, pp. 4190–4194. [**Best Student Paper Nominee**]
- Vicky Zayats, **Trang Tran**, Courtney Mansfield, Richard Wright, Mari Ostendorf. 2019, “Disfluencies and Human Speech Transcription Errors.” In *Proc. Interspeech*, pp. 3088–3092
- **Trang Tran**, Shubham Toshniwal, Mohit Bansal, Kevin Gimpel, Karen Livescu, Mari Ostendorf. 2018. “Parsing Speech: A Neural Approach to Integrating Lexical and Acoustic-Prosodic Information.” In *Proc. Conf. of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT)*, pp. 69–81

- **Trang Tran** and Mari Ostendorf. 2016. “Characterizing the Language of Online Communities and Its Relation to Community Reception.” In *Proc. Conf. Empirical Methods Natural Language Processing (EMNLP)*, pp. 1030–1035
- Gina-Anne Levow, Valerie Freeman, Alena Hrynkevich, Mari Ostendorf, Richard Wright, Julian Chan, Yi Luan, and **Trang Tran**. 2014. “Recognition of stance strength and polarity in spontaneous speech.” In *Proc. IEEE Spoken Language Technology Workshop (SLT)*, pp. 236–241.
- **Trang Tran**. 2014. “Noise-robust Voice Conversion.” Master’s Thesis, Bucknell University

TEACHING EXPERIENCE **Lead Teaching Assistant, Electrical & Computer Engineering**
University of Washington, Seattle, WA September 2019 - present

- Mentor junior teaching assistants (TAs); hold teaching workshops and peer meetings; maintain teaching resources for department TAs
- Serve as a liaison between teaching assistants and faculty in the department, ensuring the well-being and quality of TAs

Teaching Assistant, Electrical & Computer Engineering
University of Washington, Seattle, WA March 2015 - June 2019

- Courses: Continuous Time Linear Systems (Winter 2016, Autumn 2016), Discrete Time Linear Systems (Spring 2015), Conversational Artificial Intelligence (Spring 2019)
- Responsibilities: assisted in course material development and revision; ran laboratory sections and software tutorial sessions; assisted students with homework assignments; graded assignments

Teaching Assistant, Electrical Engineering & Physics Departments
Bucknell University, Lewisburg, PA Aug 2008 - May 2014

- Courses: Fundamentals of Electrical Engineering, Circuit Theory I & II, Linear Systems and Signal Processing, Electronics I & II, Electrical Control Systems, Theory and Applications of Electromagnetics, Electrical Energy Conversion, Classical and Modern Physics I & II
- Responsibilities: assisted students with lab equipment, procedures, and homework problems; graded assignments

HONORS & AWARDS **Grants and Scholarships:**
 Grace Hopper Celebration of Women in Computing Scholarship, 2015
 Graduate Summer Research Fellowship, 2013
 Richard McGinnis International Engineering Study Scholarship, 2013
 Fremont International Student Scholarship, 2007-2012
 Bucknell Provost Office Grant for Undergraduate Research, 2009

Awards:

The Professor George Allison Irland Prize, 2012
The Ernest and Josephine Christensen Award, 2012
The Jeffrey James Harold Prize, 2008

Other Honors:

- Honor societies: Phi Beta Kappa, Tau Beta Pi
- Dean's List all semesters 2007-2012, graduated summa cum laude

**OUTREACH
& SERVICE****Academic Conference Reviewer**

- Conferences & Workshops: NAACL 2019, NAACL SRW 2019, EMNLP 2019; Secondary reviewer for ACL 2019, ICASSP 2014

Graduate Staff Assistant

University of Washington, Seattle, WA May 2016 - June 2017

- Organized an annual set of graduate talks showcasing UW's Electrical & Computer Engineering (ECE) department's research
- Assisted in reviewing graduate admission applications to the UW ECE graduate program; assisted in organizing prospective student visit day and new student orientation activities
- Attended and represented UW ECE at conferences with a focus on recruiting underrepresented minorities (SWE, SACNAS, GHC, WiSE, NSBE)

Saturday School Tutor

Seattle World School, Seattle, WA Feb 2015 - May 2015

- Tutored middle & high school students with math and writing assignments; helped ESL students with English reading exercises

Bucknell Brigade, Member

Bucknell Office of Civic Engagement, Lewisburg, PA Sep 2010 - May 2012

- Fund-raised for maintaining a health clinic in Managua, Nicaragua; traveled to assist with various tasks in the clinic

International Orientation Assistant and Leader

Bucknell International Student Services, Lewisburg, PA Aug 2008 - May 2012

- Prepared orientation activities and materials for incoming international students; trained junior International Orientation Assistants

SKILLS**Computing:**

- Proficient: Python (sklearn, pytorch, tensorflow), MATLAB
- Functional: Java, Bash, C, C++

Languages: Vietnamese (native), English (fluent), French (conversational)