

Trang Tran

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

- Research areas & interests: speech processing, natural language processing; applications of speech and NLP to health, education, and social science

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

- Research areas: speech enhancement, voice conversion
- Thesis: *Noise-robust Voice Conversion*

B.S., Electrical Engineering and *B.A.*, Economics Aug 2007 - May 2012
• Summa Cum Laude

RESEARCH EXPERIENCE **Graduate Research Assistant** Jun 2014 - present
University of Washington, TIAL Lab, Seattle, WA

- **Dialog Strategies for Child-Robot Collaborative Learning**
 - Analyze child-robot interaction data for disfluencies, hesitation, turn-taking, and backchannel phenomena
 - Study locations and strategies for teachers to ask children questions in an interactive story-telling task
- **Neural Prosody Models for Spoken Language Processing**
 - Integrated a convolutional neural network to characterize prosody features with an attention-enabled encoder-decoder model for constituent parsing of conversational speech
 - Analyzed the ability of prosodic features to correct parse error types; analyzed the effects of transcription errors on parsing performance
- **Characterization and Detection of Online Community Language and Online Community Endorsement**
 - Implemented style and topic models for characterizing language of Reddit discussions
 - Investigated 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 in second-language learning applications, with focus on syntax
- Analyzed differences in L1 vs. L2 speech effects on parsing results

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 models

Visiting Graduate Intern

Jun 2016 - Sep 2016

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

- **Syntactic Constituent Parsing of Speech**

- Implemented a many-to-one encoder-decoder neural network for constituent parsing of conversational speech, using both transcription and acoustic speech features
- Studied how speech features can be used effectively in improving parsing performance, with focus on the utility of prosody

Graduate Research Assistant

Aug 2012 - May 2014

Bucknell University, Electrical and Computer Engineering, Lewisburg, PA

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

- Studied and implemented filter- and inventory-based speech enhancement methods and speech processing methods for auditory focus improvement and voice transformation
- Implemented 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 **Electrical Engineering Department, University of Washington**

March 2015 - present

- Courses: Continuous Time Linear Systems (Winter 2016, Autumn 2016), Discrete Time Linear Systems (Spring 2015)
- Teaching assistantship responsibilities: assisted in course material revision; ran laboratory sections and MATLAB tutorial sessions; assisted students with homework assignments

Electrical Engineering & Physics Departments, Bucknell University

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
- Teaching assistantship responsibilities: assisted students with lab equipment, procedures, and homework problems; graded students lab and homework assignments

LEADERSHIP & OUTREACH **Lead Teaching Assistant**

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

Graduate Staff Assistant

University of Washington, Seattle, WA

May 2016 - June 2017

- Organized an annual set of graduate talks showcasing UW's Electrical Engineering department's research
- Assisted in reviewing graduate admission applications to UW's Electrical Engineering graduate program
- Assisted in organizing prospective student visit day, new student orientation activities, and recruiting events

Saturday School Tutor

Seattle World School, Seattle, WA

Feb 2015 - May 2015

- Tutored middle & high school students with math and writing assignments; helped newcomer 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; assist with various tasks in the clinic and Managua community

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

HONORS & AWARDS

Grants and Scholarships:

Grace Hopper Celebration of Women in Computing Scholarship 2015

Graduate Summer Research Fellowship (Summer 2013)

Richard McGinnis International Engineering Study Scholarship (Summer 2013)

Fremont International Student Scholarship (2007-2012)

Bucknell Provost Office Grant for Undergraduate Research (Summer 2009)

Awards:

The Professor George Allison Irland Prize 2012

The Ernest and Josephine Christensen Award 2012

The Jeffrey James Harold Prize 2008

Honor Societies: Phi Beta Kappa, Tau Beta Pi, Omicron Delta Epsilon, Alpha Lambda Delta

SKILLS

Computing:

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

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