**Trang Tran**

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**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 & Computer 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**:
UW SWE Outstanding Female Engineer Award, 2020
The Professor George Allison Irland Prize, 2012
The Ernest and Josephine Christensen Award, 2012

The Jeffrey James Harold Prize, 2008

**Other Honors**:

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

## OUTREACH & SERVICE

**Academic Conference Reviewer**

- Conferences & Workshops: ACL 2020, NAACL 2019, NAACL SRW 2019, EMNLP 2019; Secondary reviewer for ACL 2019, ICASSP 2014

**Student Advisory Council Committee**

*University of Washington, Seattle, WA* June 2019 - present

- Co-led an initiative to establish ECE department's student advisory council that serves as a platform for transparent communication between the student body and ECE leadership
- Organized town halls, recorded and summarized students' concerns, and worked with ECE leadership to address these concerns

**Graduate Staff Assistant**

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

- Organized an annual set of talks showcasing UW ECE students' 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
- 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**: Python, MATLAB (proficient); Java, Bash (functional)

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