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

M.S., Electrical Engineering

Aug 2012 - May 2014

- 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, and backchannel phenomena
- Study locations and strategies for teachers to ask children questions in an interactive story-telling task
- Implement and evaluate automatic question generation within story context

• 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
- 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 Electrical Engineering Department, University of Washington EXPERIENCE 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 Lead Teaching Assistant

& OUTREACH 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

- 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 & Grants and Scholarships: AWARDS Grace Hopper Celebration

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 LATEX, PSpice
- Basic knowledge: Java, Bash, C, C++

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