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   **Graduate Research Assistant**   Jun 2014 - present
EXPERIENCE   *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 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: 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)