

## Aaron Jaech

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### Research Interests

Language Modeling, Speech Recognition, Semantic Parsing, Social Media

### Education

#### University of Washington

Seattle, WA

*Ph.D. Electrical Engineering*

*Sept. 2013 – Present*

- Concentration: Speech and Language Processing
- Supervisor: Dr. Mari Ostendorf

#### Carnegie Mellon University

Pittsburgh, PA

*B.S. Computer Science & B.S. Mathematical Sciences*

*Aug. 2005 – May 2011*

### Research Experience

#### Google Research

Mountain View, CA

*Research Intern*

*June 2015 – Sept. 2015*

- Scalable Slot Filling Models for Structured Actions
  - Investigated the use of LSTM RNN models for slot filling.
  - Designed a multitask learning approach to build models for actions with limited data.

#### University of Washington

Seattle, WA, USA

*Research Assistant*

- Social Media Text Analysis *Oct 2014 – June 2015*
  - Studied how language usage effects crowd response in online discussions.
  - Developed features for representing informativeness, mood and reputation of discussion forum comments.
  - Showed how morphology learning can be applied to usernames to predict personal characteristics like language and gender.
- Keyword Spotting for Low Resource Languages *Oct. 2013 – June 2014*
  - Built a system for efficiently gathering text from Twitter to train language models for low resource languages.
  - Demonstrated that learning word classes on out-of-domain data is more effective for language model adaptation than classes learned on smaller in-domain data.

#### Android Face Recognition Team, Google

Pittsburgh, PA

*Research Intern*

- Eye Gaze Estimation *Jun. 2014 – Sept.. 2014*
  - Trained a model for landmarking iris and eye corners.
  - Designed a model for pose independent eye gaze estimation.
- Head Pose Estimation *May. 2013 – Aug. 2013*
  - Implemented geometric algorithm for head pose estimation from noisy facial landmarks.
  - Designed a system to create accurate 3D head models from a collection of 2.5D images.

- Face Recognition *Oct. 2009 – May 2013*
  - Designed an algorithm for multi-modal biometric continuous authentication using iris and face recognition.
  - Designed an algorithm for gender and ethnicity classification of mugshots.
- Cardiosynchronous Waveform Based Biometrics *Dev. 2010 – March 2013*
  - Investigated a new cardiosynchronous signal for biometric identification.
  - Developed algorithms for segmentation and classification of cardiosynchronous signals.

## **Publications**

### **Journal Articles**

- [J1] HA Choudry, PL Wagner, F. Austin, M. Zenati, **A. Jaech**, A. Mavanur, L. Ramalingam, HL Jones, MP Holtzman, SA Ahrendt, AH Zureikat, JF Pingpank, HJ Zeh, DL Bartlett, "Oncologic Risk Stratification Following Cytoreductive Surgery and Hyperthermic Intraperitoneal Chemotherapy for Appendiceal Carcinomatosis", *Annals of Surgical Oncology*, 2016.
- [J2] Y. He, P. Baumann, **A. Jaech**, B. Hutchinson, M. Ostendorf, E. Fosler-Lussier, and J. Pierrehumbert, "Morphology-based subword modeling for handling OOV words in keyword spotting", *IEEE Trans. Audio, Speech and Language Processing*, 2015.

### **Conference Articles**

- [C1] **A. Jaech**, R. Koncel-Kedziorski, M. Ostendorf, "Phonological Pun-derstanding", *to appear in NAACL* 2016.
- [C2] **A. Jaech**, M. Ostendorf, "What Your Username Says About You", *Proc. EMNLP* 2015.
- [C3] **A. Jaech**, V. Zayats, H. Fang, M. Ostendorf, H. Hajishirzi, "Talking to the crowd: What do people react to in online discussions?", *Proc. EMNLP* 2015.
- [C4] P. Tsatsoulis, **A. Jaech**, R. Baite, M. Savvides, "Multimodal Biometric Hand-Off for Robust Unobtrusive Continuous Biometric Authentication", *IT Policy and Ethics: Concepts, Methodologies, Tools, and Applications: Concepts, Methodologies, Tools, and Applications*, 2013: 389.
- [C5] **A. Jaech**, R. Blue, R. Friedman, MO Griofa, M. Savvides, BVK Vijaya Kumar, "Classification of cardiosynchronous waveforms by projection to a Legendre Polynomial sub-space", *Conference of the Engineering in Medicine and Biology Society*, 2012.
- [C6] C. Bhagavatula, **A. Jaech**, M. Savvides, V. Bhagavatula, r. Friedman, R. Blue, MO Griofa, "Automatic Segmentation of Cardiosynchronous Waveforms Using Cepstral Analysis and Continuous Wavelet Transforms", *IEEE International Conference on Image Processing*, 2012.
- [C7] F. Juefei-Xu, C. Bhagavatula, **A. Jaech**, U. Prasad, M. Savvides, "Gait-ID on the Move: Pace Independent Human Identification Using Cell Phone Accelerometer Dynamics", *IEEE Conference on Biometrics: Theory, Applications and Systems*, 2012.
- [C8] SYD Hu, B. Jou, **A. Jaech**, M. Savvides, "Fusion of region-based representations for gender identification", *International Joint Conference on Biometrics*, 2011.
- [C9] MO Griofa, R. Blue, R. Friedman, **A. Jaech**, M. Bhagavatula, SD Hu, M. Savvides, "Radio Frequency Cardiopulmonary Waveform for Subject Identification", *Asilomar Conference on Signals and Systems*, 2011.