

EDUCATION	<p>University of Massachusetts, Amherst (UMass Amherst), USA Sept. 2015 – Current <i>MS/PhD Student, Computer Science</i></p> <ul style="list-style-type: none"> GPA: 3.98/4.00 <p>National Yang Ming Chiao Tung University (NYCU), Taiwan Sept. 2007 – June 2011 <i>Bachelor of Science, EECS Undergraduate Honors Program</i></p> <ul style="list-style-type: none"> GPA: 95.25/100 (3.99/4.00)
SYSTEM DEVELOPMENT	<p>OpenReview Reviewer-Paper Affinity Estimation Feb. 2020 – Oct. 2020</p> <ul style="list-style-type: none"> My ensemble model is adopted by NeurIPS 2020-2021, ICLR 2021-2022, ICML, ACL ARR, ... <p>UMass TAC 2016 (Team Leader) May 2016 – Sept. 2016</p> <ul style="list-style-type: none"> First place in TAC 2016 Spanish KBC (Knowledge Base Construction) and SF (Slot Filling) Outperform Stanford TAC 2016 English system in their crowdsourcing evaluation platform (https://twitter.com/stanfordnlp/status/914256758482153472)
SELECTED PUBLICATIONS	<p>Multi-facet Embedding for Language Modeling</p> <ol style="list-style-type: none"> [1] H.-S. Chang*, R.-Y. Sun*, K. Ricci*, and A. McCallum, “Efficient BERT Ensemble using Multiple [CLS] Embeddings” <i>In preparation (Got positive experimental results)</i> [2] H.-S. Chang*, Z. Yao*, A. Gon, and A. McCallum, “Softmax Bottleneck Makes GPT-2 Generate Incoherent and Repeated Text” <i>In preparation (Got positive experimental results)</i> [3] H.-S. Chang, N. Agarwal, T. Wang, and A. McCallum, “Modeling Multi-mode Item Distributions in Sequential Recommendation” <i>In preparation (Got positive experimental results)</i> [4] H.-S. Chang, and A. McCallum, “Softmax Bottleneck Makes Language Models Unable to Represent Multi-mode Word Distributions,” <i>Annual Meeting of the Association for Computational Linguistics (ACL), 2022</i> [5] H.-S. Chang, J. Yuan, M. Iyyer, and A. McCallum, “Changing the Mind of Transformers for Topically-Controllable Language Generation,” <i>Conference of the European Chapter of the Association for Computational Linguistics (EACL Oral), 2021.</i> [6] R. Paul*, H.-S. Chang*, and A. McCallum, “Multi-facet Universal Schema,” <i>Conference of the European Chapter of the Association for Computational Linguistics (EACL Oral), 2021.</i> [7] H.-S. Chang, A. Agrawal, and A. McCallum, “Extending Multi-Sense Word Embedding to Phrases and Sentences for Unsupervised Semantic Applications,” <i>AAAI Conference on Artificial Intelligence (AAAI), 2021.</i> <p>Active Learning and Crowdsourcing</p> <ol style="list-style-type: none"> [11] H.-S. Chang, S. Vembu, S. Mohan, R. Uppaal, and A. McCallum, “Using Error Decay Prediction to Overcome Practical Issues of Deep Active Learning for Named Entity Recognition,” <i>Machine Learning</i>, 109, 1749–1778, 2020 [12] X.L. Dong, X. He, A. Kan, X. Li, Y. Liang, J. Ma, ... , H.-S. Chang, ... , “AutoKnow: Self-driving Knowledge Collection for Products of Thousands of Types,” <i>ACM SIGKDD International Conference on Knowledge Discovery & Data Mining (KDD), 2020</i> [13] H.-S. Chang, C.-F. Hsu, T. Hoffeld, and K.-T. Chen, “Active Learning for Crowdsourcing Multidimensional-QoE Modeling,” <i>IEEE Transactions on Multimedia (TMM), 2018</i> [14] H.-S. Chang, E. Learned-Miller, and A. McCallum, “Active Bias: Training a More Accurate Neural Network by Emphasizing High Variance Samples,” <i>Advances in Neural Information Processing Systems (NeurIPS), 2017</i> [15] H.-S. Chang, H.-J. Hsu and K.-T. Chen, “Modeling Exercise Relationships in E-Learning: A Unified Approach,” <i>Int’l Conference on Educational Data Mining (EDM short), 2015.</i>

Other Natural Language Processing Applications

- [5] R. Seoh*, I. Birlé*, M. Tak*, H.-S. Chang*, B. Pinette, and A. Hough, “Open Aspect Target Sentiment Classification with Natural Language Prompts,” *Conference on Empirical Methods in Natural Language Processing (EMNLP short)*, 2021.
- [6] H.-S. Chang, Z. Wang, L. Vilnis, and A. McCallum, “Distributional Inclusion Vector Embedding for Unsupervised Hypernymy Detection,” *Human Language Technology Conference of the North American Chapter of the Association of Computational Linguistics (HLT/NAACL)*, 2018
- [7] H.-S. Chang, A. Agrawal, A. Ganesh, A. Desai, V. Mathur and A. McCallum, “Efficient Graph-based Word Sense Induction by Distributional Inclusion Vector Embeddings,” *TextGraphs-12: the Workshop on Graph-based Methods for Natural Language Processing*, 2018.
- [8] S. Mysore, E. Kim, E. Strubell, A. Liu, H.-S. Chang, S. Kompella, K. Huang, A. McCallum, and E. Olivetti, “Automatically Extracting Action Graphs from Materials Science Synthesis Procedures,” *NIPS Workshop on Machine Learning for Molecules and Materials*, 2017.
- [9] H.-S. Chang, A. Munir, A. Liu and J. T.-Z. Wei, A. Traylor, A. Nagesh, N. Monath, P. Verga, E. Strubell, A. McCallum “Extracting Multilingual Relations under Limited Resources: TAC 2016 Cold-Start KB Construction and Slot-Filling using Compositional Universal Schema,” *TAC*, 2016

Computer Vision (Unsupervised Clustering and Matching)

- [14] H.-S. Chang and Y.-C. F. Wang, “Optimizing the Decomposition of Multiple Foreground Cosegmentation,” *Computer Vision and Image Understanding (CVIU)*, 141 pp. 18-27, 2015.
- [15] H.-S. Chang and Y.-C. F. Wang, “Simple-to-Complex Discriminative Clustering for Hierarchical Image Segmentation,” *Asian Conference on Computer Vision (ACCV)*, 2014.
- [16] H.-S. Chang and Y.-C. F. Wang, “Superpixel-Based Large Displacement Optical Flow,” *IEEE International Conference on Image Processing (ICIP)*, 2013.
- [17] W.-T. Li, H.-S. Chang, K.-C. Lien, H.-T. Chang, and Y.-C. F. Wang, “Exploring Visual and Motion Saliency for Automatic Video Object Extraction,” *IEEE Transactions on Image Processing (TIP)*, 22(7), pp. 2600-2610, 2013.

SERVICE

Research Mentor of more than 40 students in UMass

- The collaboration leads to publication in EMNLP, NAACL, EACL, AAAI, TAC, Machine Learning, and 2 workshops
- Drafting the recommendation letters for 9 students

Reviewer

- Top reviewers in NeurIPS 2020 and ICLR 2021
- Reviewers in NIPS*3, ICLR*4, AAAI, ACL ARR, ACL, EMNLP, NAACL, TPAMI, Machine Learning, TMM, QoMEX, ICASSP, ICIP, ICPR, ...

Project Coordinator for IESL’s \$5.5m grant from the Chan Zuckerberg Initiative

WORK EXPERIENCE

Intern, Amazon, USA

June 2019 – Sept. 2019

- Project: Product Attribute Importance Estimation

Consultant - Researcher, Chan Zuckerberg Initiative, USA

June 2018 – Sept. 2018

- Project: Practical Active Learning

Teaching Assistant, UMass Amherst, USA

Sept 2015 – June 2016

Research Assistant, CITI/IIS, Academia Sinica, Taiwan

July 2012 – July 2015

- Research areas: Computer Vision, Active Learning, Educational Data Mining

Second Lieutenant, Ministry of National Defense of Taiwan

Aug. 2011 – July 2012

UNDERGRADUATE HONORS

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|--|-------------------|
| 2011 Honorary Member of the Phi Tau Phi Scholastic Honor Society | (top 1% in NYCU) |
| 2007-2011 Exceptional Academic Performance Awards (7 times) | (top 3% in EECS) |
| 2010 Exchange Student Scholarship (26,000 USD) | (top 1% in NYCU) |
| 2010 Zhu Shun Zyxel Academic Merit Scholarship (4,000 USD) | (top 1% in NYCU) |
| 2007 Outstanding Incoming Student Scholarship (10,000 USD) | |
| • Awarded for performing in top 0.2% out of ~40,000 people on the college entrance examination | |