

# DR. HAN-CHIN SHING

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## EDUCATION

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University of Maryland, College Park, MD	GPA: 3.93/4.0
Ph.D. in Computer Science	August 2021
Master of Science in Computer Science	May 2019
National Taiwan University, Taipei, Taiwan	GPA: 4.02/4.3
Bachelor of Science in Electrical Engineering	June 2014

## RESEARCH

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**Encounter-Level Summarization of Clinical Documents** Jun 2020 - Present  
with Amazon Comprehend Medical, Prof. Philip Resnik and Prof. Doug Oard

- Introduce encounter-level summarization by generating discharge summary from prior clinical documents.
- Design an extractive-abstractive summarization pipeline for evidence-preserving clinical summarization.

**A Prioritization Model for Suicidality Risk Assessment** May 2019 - May 2020  
with Prof. Philip Resnik and Prof. Doug Oard

- Empowered experts by surfacing at-risk individuals for faster and better assessment using machine learning.
- Incorporated user behavior, ranking, and time into the evaluation of machine assessment of suicidal risk.

**Medical Coding at the Encounter Level by Paying Attention to Documents** May 2018 - Sep 2019  
with 3M Health Information System and Prof. Philip Resnik

- A real world deep learning approach to document *set* prediction, with applications to clinical coding.
- Facilitated and evaluated interpretability of neural models using hierarchical attention on clinical documents.

**Unsupervised System Combination with Expectation Maximization** Sep 2018 - Apr 2019  
with Prof. Doug Oard and Prof. Philip Resnik

- Designed an unsupervised combination technique for cross-language information retrieval systems.
- Achieved consistent improvements on English query searches in 3 languages: Swahili, Somali, and French.

**ExpertSourcing for Clinical Notes** May 2017 - Sep 2018  
with Prof. Suchi Saria and Prof. Philip Resnik

- Designed a generative model inspired by crowdsourcing to turn expert-derived rules into training data.
- Collaborated with clinicians to build rules for coding at a Baltimore-area hospital.

**Expert, Crowdsourced, and Machine Assessment of Suicide Risk** Sep 2016 - May 2018  
with Prof. Philip Resnik and Prof. Hal Daumé III

- Built the *SuicideWatch* dataset for the *NAACL CLPsych 2019 Shared Task*, with 24K users.
- Evaluated suicide risk prediction by comparing between machine learning, experts and crowdsourcers.

## SELECTED PUBLICATIONS

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- **Shing, Han-Chin**, Philip Resnik, and Douglas W. Oard. “A Prioritization Model for Suicidality Risk Assessment.”, In Association for Computational Linguistics (ACL). 2020
- **Shing, Han-Chin**, Guoli Wang, and Philip Resnik. “Assigning Medical Codes at the Encounter Level by Paying Attention to Documents.”, In Machine Learning for Health Workshop (ML4H) at NeurIPS. 2019.
- **Shing, Han-Chin**, Joe Barrow, Petra Galuščáková, Douglas W. Oard, and Philip Resnik. “Unsupervised system combination for set-based retrieval with expectation maximization.” In International Conference of the Cross-Language Evaluation Forum for European Languages (CLEF). 2019.
- **Shing, Han-Chin**, Suraj Nair, Ayah Zirikly, Meir Friedenberg, Hal Daumé III, and Philip Resnik. “Expert, crowdsourced, and machine assessment of suicide risk via online postings.” In Proceedings of the Fifth Workshop on Computational Linguistics and Clinical Psychology (CLPsych) at NAACL. 2018.

## WORK EXPERIENCE

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**Amazon Comprehend Medical**, *Intern, Applied Scientist* Jun 2020 - Sep 2020

- Collaborated with research scientists and clinical practitioner on the problem of clinical summarization.
- Designed and developed state-of-the-art neural summarization models for clinical documents.

**3M Health Information System**, *Intern, NLP* May 2018 - Sep 2018

- Designed and evaluated a real-world encounter-level medical coding model.
- Collaborated with an Agile team to implement evidence retrieval modules used in production.

**Johns Hopkins University**, *Intern, NLP* May 2017 - Aug 2017

- Worked with Prof. Suchi Saria on disease annotation of clinical notes using *ExpertSourcing*.

**University of Maryland**, *Graduate Research Assistance* Sep 2016 - Present

- Working with Prof. Philip Resnik and Prof. Doug Oard on suicidality assessment and information retrieval.

## OTHERS

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**Programming Languages** Python, Java, C++, C, Matlab

**Tools** Pytorch, AllenNLP, MXNet, GluonNLP, PyStan, Edward, Pandas, Sklearn

**Citizenship** US citizen