

# John P. Lalor

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## Education

- 2020 **Ph.D. Computer Science**, University of Massachusetts, Amherst, MA.  
Thesis: Learning Latent Characteristics of Data and Models using Item Response Theory  
Advisor: Dr. Hong Yu
- 2015 **M.S. Computer Science**, DePaul University, Chicago, IL.
- 2011 **B.B.A. IT Management**, University of Notre Dame, South Bend, IN.  
Minor: Irish Language and Literature

## Professional Experience

- 2020 - **Assistant Professor**, IT, Analytics and Operations Department.  
Mendoza College of Business, University of Notre Dame, Notre Dame, IN
- 2019 **Instructor**, IT, Analytics and Operations Department.  
Mendoza College of Business, University of Notre Dame, Notre Dame, IN
- 2017, 2018 **Applied Scientist Intern**, Amazon Alexa, Cambridge, MA.
- 2016 **Intern**, ESPN Advanced Technology Group, Bristol, CT.
- 2013 - 2015 **Software Developer**, Eze Software Group, Chicago, IL.
- 2011 - 2013 **Advisory Associate**, KPMG, Chicago, IL.

## Publications

Manuscripts Under Review

- 21 **J.P. Lalor**, H. Guo. Measuring Algorithmic Interpretability.
- 20 **J.P. Lalor**, H. Yu. Dynamic Data Selection for Curriculum Learning by Ability Estimation.

Journal and Conference Publications

- 19 **J.P. Lalor**, H. Wu, H. Yu. Learning Latent Parameters without Human Response Patterns: Item Response Theory with Artificial Crowds. *EMNLP-IJCNLP 2019: Conference on Empirical Methods in Natural Language Processing and International Joint Conference on Natural Language Processing*, 2019
- 18 J. Chen, **J.P. Lalor**, W. Liu, E. Druhl, H. Yu. Detecting Hypoglycemia Incidents Reported in Patients' Secure Messages: Using Cost-sensitive Learning and Oversampling to Reduce Data Imbalance. *J Med Internet Res* 2019;21(3):e11990. doi:10.2196/11990
- 17 **J.P. Lalor**, B. Woolf, H. Yu. Improving EHR Note Comprehension with NoteAid: A Randomized Trial of EHR Note Comprehension Interventions with Crowdsourced Workers. *J Med Internet Res* 2019;21(1):e10793. doi:10.2196/10793.

- 16 **J.P. Lalor**, H. Wu, T. Munkhdalai, H. Yu. Understanding Deep Learning Performance through an Examination of Test Set Difficulty: A Psychometric Case Study. *EMNLP 2018: Conference on Empirical Methods in Natural Language Processing*, 2018.  
**Oral presentation, top 10% of short papers**
  - 15 **J.P. Lalor**, H. Wu, L. Chen, K. Mazor, H. Yu. CompreHENotes, an Instrument for Assessing Patient Electronic Health Record Note Reading Comprehension: Development and Validation. *J Med Internet Res* 2018;20(4):e139. doi:10.2196/jmir.9380
  - 14 **J.P. Lalor**, H. Wu, H. Yu. Building an Evaluation Scale using Item Response Theory. *EMNLP 2016: Conference on Empirical Methods in Natural Language Processing*, Austin, TX, USA, November 2016.
  - 13 C. Miller, A. Settle, **J.P. Lalor**. Learning Object-Oriented Programming in Python: Towards an Inventory of Difficulties and Testing Pitfalls. *SIGITE 2015: The Special Interest Group for Information Technology Education Conference*, Chicago, IL, October 2015
  - 12 A. Settle, **J.P. Lalor**, T. Steinbach. Evaluating a Linked-Courses Learning Community for Development Majors. *SIGITE 2015: The Special Interest Group for Information Technology Education Conference*, Chicago, IL, October 2015
  - 11 A. Settle, **J.P. Lalor**, T. Steinbach. A Computer Science Linked-Courses Learning Community. *ITiCSE 2015: The 20th Annual Conference on Innovation and Technology in Computer Science Education*. Vilnius, Lithuania, July 2015
  - 10 A. Settle, **J.P. Lalor**, T. Steinbach. Reconsidering the Impact of CS1 on Novice Attitudes. *SIGCSE 2015: The ACM Special Interest Group on Computer Science Education*. Kansas City, MO, March 2015
- Workshop Papers, Posters, and Abstracts
- 9 E. Cho, H. Xie, **J.P. Lalor**, V. Kumar, W. M. Campbell. Efficient Semi-Supervised Learning for Natural Language Understanding by Optimizing Diversity. *ASRU 2019: the IEEE Automatic Speech Recognition and Understanding Workshop Paper*, 2019.
  - 8 **J.P. Lalor**, H. Wu, H. Yu. Learning Latent Parameters without Human Response Patterns: Item Response Theory with Artificial Crowds. *NAACL Workshop on Shortcomings in Vision and Language (SiVL)* Extended Abstract, 2019.
  - 7 **J.P. Lalor**, H. Wu, H. Yu. Comparing Human and DNN-Ensemble Response Patterns for Item Response Theory Model Fitting. *NAACL Workshop on Cognitive Modeling and Computational Linguistics (CMCL)* Extended Abstract, 2019.
  - 6 J. Chen, **J.P. Lalor**, H. Yu. Detecting Hypoglycemia Incidents from Patients' Secure Messages. *American Medical Informatics Association (AMIA) Annual Symposium Poster*, 2018.
  - 5 **J.P. Lalor**, H. Wu, H. Yu. Soft Label Memorization-Generalization for Natural Language Inference. *Workshop on Uncertainty in Deep Learning. Uncertainty in Artificial Intelligence (UAI)* Paper, 2018.
  - 4 **J.P. Lalor**, H. Wu, H. Yu. Modeling Difficulty to Understand Deep Learning Performance. *Northern Lights Deep Learning Workshop (NLDL)* Extended Abstract, 2018.
  - 3 **J.P. Lalor**, H. Wu, H. Yu. CIFT: Crowd-Informed Fine-Tuning to Improve Machine Learning Ability. *Human Computation and Crowdsourcing (HCOMP)* Works-in-Progress, 2017.

- 2 **J.P. Lalor**, H. Wu, L. Chen, K. Mazor, H. Yu. Generating a Test of Electronic Health Record Narrative Comprehension with Item Response Theory. *American Medical Informatics Association (AMIA) Annual Symposium* Podium Abstract, 2017.
- 1 T. Munkhdalai, **J.P. Lalor**, H. Yu. Citation Analysis with Neural Attention Models. *LOUHI 2016 : The Seventh International Workshop on Health Text Mining and Information Analysis*, Austin, TX, USA, November 2016.

## Research Support

Grant Title **Towards Automatic Generation of Electronic Health Record Note Comprehension Questions**

Funder University of Notre Dame

Role Principal Investigator

Program Faculty Research Support Program - Initiation Grant

Period 01/2020-12/2020

Amount \$10k

## Tutorials and Talks

- 09/2019 Learning Latent Parameters Without Human Response Patterns: Item Response Theory with Artificial Crowds. *Notre Dame Department of Computer Science and Engineering Seminar Series*.
- 11/2018 Evaluation and Interpretability in Deep Neural Networks. *American Medical Informatics Association (AMIA) Annual Symposium* Instructional Workshop, 2018. With A. Jagannatha and H. Yu.
- 09/2018 Leveraging Uncertainty for Better DNN Training and Evaluation. *UMass Lowell Data Science Lecture Series*.
- 09/2017 Building Better Evaluations using Item Response Theory. *University of Notre Dame Natural Language Processing Group*.
- 12/2016 Building Evaluation Scales for NLP using Item Response Theory. *UMass CICS Machine Learning and Friends Lunch series*.

## Teaching

*University of Notre Dame, Mendoza College of Business*

Fall 2019 **Instructor**, ITAO 40250: *Unstructured Data Analytics*, advanced undergraduate.

Fall 2019 **Instructor**, ITAO 70810: *Data Wrangling with R*, M.S. in Business Analytics.  
*University of Massachusetts*

Fall 2018 **Instructor**, UMass Lowell Data Science Lecture Series, University of Massachusetts Lowell.

Fall 2018 **Instructor**, CICS First Year Seminar, University of Massachusetts Amherst.

2015 **Teaching Assistant**, Introduction to Computer Science, Amherst College, Amherst, MA.

## Advising

2019- **Vincent Buono**, BBA, Business Analytics, research supervisor.

- 2019- **Ming-Cheng Ma**, MS, Business Analytics, research supervisor.
- 2018 **Long Le**, BS, Computer Science, research supervisor.
- 2018 **UMass CICS Industry Mentor Program**, MS student group research mentor.
- 2017-2018 **Nikhil Titus**, MS, Computer Science, research supervisor.
- 2014 - 2015 **Tutor**, DePaul University.

## Media Coverage

- 02/20/2019 VA Research News Briefs, "Educational tool helps patient understand electronic health records."  
[https://www.research.va.gov/in\\_brief.cfm](https://www.research.va.gov/in_brief.cfm)
- 04/11/2017 NYU Center for Data Science, "Can deep learning models learn like the human brain?"  
<https://cds.nyu.edu/machine-learning-intelligence/>

## Service

- 2020 **Reviewer**, JMIR.
- 2020 **Program Committee**, ACL Workshop on Representation Learning for NLP (RepL4NLP).
- 2019 **Reviewer**, NAACL, ACL, AMIA, JMIR, CoNLL.
- 2018 - 2019 **Co-organizer**, UMass CICS Machine Learning and Friends Lunch..
- 2018 **Reviewer**, American Journal of Preventative Medicine (AJPM), American Medical Informatics Association (AMIA) Annual Symposium, Journal of Medical Internet Research (JMIR).
- 2017 **Reviewer**, Journal of Medical Internet Research (JMIR).
- 2014 - 2015 **Graduate Ambassador**, DePaul University.

## Honors and Awards

- 2018 UMass CICS Travel Grant recipient
- 2015 Upsilon Pi Epsilon Computer Science Honor Society, DePaul chapter
- 2010, 2011 USA Rugby Midwest Select Side Selection
- 2008 USA Rugby Under-19s Selection

Last Updated: February 2020