*University of Notre Dame*
*338B Mendoza College of Business*
*Notre Dame, IN 46556*
☎ *(574) 631-5104*
✉ *john.lalor@nd.edu*
*jplalor.github.io*

# John P. Lalor

## 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

1 **J.P. Lalor**, H. Guo. Measuring Algorithmic Interpretability.

2 **J.P. Lalor**, H. Yu. Dynamic Data Selection for Curriculum Learning by Ability Estimation.

### Journal and Conference Publications

1 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*, 2019.

2 **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

3 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

4 **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.

5 **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**

6 **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

7 **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.

8 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

9 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

10 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

11 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

1 **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.

2 **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.

3 J. Chen, **J.P. Lalor**, H. Yu. Detecting Hypoglycemia Incidents from Patients' Secure Messages. *American Medical Informatics Association (AMIA) Annual Symposium* Poster, 2018.

4 **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.

5 **J.P. Lalor**, H. Wu, H. Yu. Modeling Difficulty to Understand Deep Learning Performance. *Northern Lights Deep Learning Workshop (NLDL)* Extended Abstract, 2018.

6 **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.

7 **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.

8 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*

Spring 2020 **Instructor**, *ITAO 40250: Unstructured Data Analytics*, advanced undergraduate.

Spring 2020 **Instructor**, *ITAO 70810: Data Wrangling with R*, MBA/MSBA Dual-Degree.

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

Fall 2019 **Instructor**, *ITAO 70810: Data Wrangling with R*, MS 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`

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

### Program committees

2020 **Reviewer**, Association of Computational Linguistics (ACL), Empirical Methods in Natural Language Processing (EMNLP), American Medical Informatics Association (AMIA), ACL Workshop on Representation Learning for NLP (RepL4NLP), Asia-Pacific Chapter of the Association for Computational Linguistics (AACL).

2019 **Reviewer**, North American Chapter of the Association of Computational Linguistics (NAACL), Association of Computational Linguistics (ACL), Empirical Methods in Natural Language Processing (EMNLP), American Medical Informatics Association (AMIA), The SIGNLL Conference on Computational Natural Language Learning (CoNLL).

### Journals I've reviewed for

American Journal of Preventative Medicine (AJPM), Journal of Medical Internet Research (JMIR), Journal of the American Medical Informatics Association (JAMIA)

### Additional service

2018 - 2019 **Co-organizer**, UMass CICS Machine Learning and Friends Lunch..

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: May 2020