

# LUCY LU WANG

Curriculum vitae

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## EDUCATION

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**Ph.D. candidate in Biomedical Informatics and Medical Education** *expected 2019*

University of Washington, Seattle, WA

Committee: John H. Gennari, Neil F. Abernethy, Paul K. Crane, Ali Shojaie (GSR)

Dissertation on:

- (1) ontology-based organization of biological pathway knowledge-bases;
- (2) NLP and topology-based methods for entity matching between knowledge graphs;
- (3) biological pathway representation for pathway-based enrichment analysis

**M.S. in Applied Biomedical Engineering** 2013

The Johns Hopkins University, Baltimore, MD

Thesis: "Matching pursuit for detection of photo-sensitive epileptic response in EEG signal"

**B.S. in Physics** 2009

Massachusetts Institute of Technology, Cambridge, MA

## REFEREED JOURNAL & CONFERENCE PUBLICATIONS

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2018. **Wang L.L.**, Bhagavatula C., Neumann M., Lo K., Wilhelm C., Ammar W. Ontology alignment in the biomedical domain using entity definitions and context. *Proceedings of the 56th Annual Meeting of the Association for Computational Linguistics*. arXiv:1806.07976

2018. **Wang L.L.**, Shimoyama M.E., Hayman G.T., Smith J.R., Tutaj M, Gennari J.H. Ontology-based integration of pathway databases using Pathway Ontology annotations. *Proceedings of the 26th Conference on Intelligent Systems for Molecular Biology*.

2017. **Wang L.L.**, Gennari J.H. Similarity metrics for determining overlap among biological pathways. *Proceedings of the 2017 International Conference on Biomedical Ontology*.

2017. Kaminsky D.A., **Wang L.L.**, Bates J.H.T., Thamrin C., Shade D.M., Dixon A.E., Wise R.A., Peters S., Irvin C.G. Fluctuation analysis of peak expiratory flow and its associations with treatment failure in asthma. *American Journal of Respiratory and Critical Care Medicine*, 195(8): 993-9. PMID: 27814453, DOI: 10.1164/rccm.201601-0076OC.

2016. Jung H., Law A.B., Grunblatt E., **Wang L.L.**, Kusano A., Mejino Jr. J.L.V., Whipple M.E. Development of a novel Markov chain model for the prediction of head and neck squamous cell carcinoma dissemination. *AMIA Annual Symposium Proceedings, 2016*: 1832-9. PMID: 28269942

2016. **Wang L.L.**, Gennari J.H., Abernethy N.F. An analysis of differences in biological pathway resources. *Proceedings of the 2016 Joint International Conference on Biological Ontology and BioCreative*.

2015. **Wang L.L.**, Grunblatt E., Jung H., Kalet I.J., Whipple M.E. Biological model development as an opportunity to provide content auditing for the foundational model of anatomy ontology. *AMIA Annual Symposium Proceedings*, 2015: 2111-20. PMID: 26958311
2015. Zaidman C.M., **Wang L.L.**, Connolly A.M., Florence J., Wong B.L., Parsons J.A. et al. Electrical impedance myography in Duchenne muscular dystrophy and health controls: a multi-center study of reliability and validity. *Muscle & Nerve*, 52(4): 592-7. PMID: 25702806, DOI: 10.1002/mus.24611.
2011. **Wang L.L.**, Spieker A.J., Li J. & Rutkove S.B. Electrical impedance myography for monitoring motor neuron loss in the SOD1 G93A amyotrophic lateral sclerosis rat. *Clinical Neurophysiology*, 122: 2505-11. PMID: 21612980, DOI: 10.1016/j.clinph.2011.04.021.
2011. **Wang L.L.**, Ahad M., McEwan A., Li J., Jafarpoor M. & Rutkove S.B. Assessment of alterations in the electrical impedance of muscle after experimental nerve injury via finite-element analysis. *IEEE Transactions on Biomedical Engineering*, 58(6): 1585-91. PMID: 21224171, DOI: 10.1109/TBME.2011.2104957.

## FELLOWSHIPS & AWARDS

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- 2014–2018. National Library of Medicine Informatics Training Fellowship
2017. UW Graduate School Fund for Excellence and Innovation Travel Award
2016. BioCreative/ICBO travel fellowship
2015. UW Graduate School Fund for Excellence and Innovation Travel Award
2014. UW Graduate School Top Scholar Top Off Fellowship

## GRANTS

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### Winter 2018 – UW Student Technology Grant, \$88,426

*University of Washington Student Technology Fee Committee*

Secure computing infrastructure for student research in biomedical informatics and data science

## CONFERENCE PRESENTATIONS

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2018. “Quantifying the effects of gene entity disambiguation for GSEA.” *To be presented* at the American Medical Informatics Association Annual Symposium, November 5, 2018, San Francisco, CA, USA.
2018. “Ontology alignment in the biomedical domain using entity definitions and context.” Bio-NLP, Annual Meeting of the Association for Computational Linguistics, July 19, 2018, Melbourne, Victoria, Australia.
2018. “Ontology-based integration of pathway databases using Pathway Ontology annotations.” 26th Conference on Intelligent Systems for Molecular Biology, July 9, 2018, Chicago, IL, USA.
2017. “Similarity metrics for determining overlap among biological pathways.” International Conference on Biomedical Ontology, September 15, 2017, Newcastle upon Tyne, United Kingdom.

2017. “Detection and Functional Classification of Fusion Genes Using Pathway Expression Profiles.” American Medical Informatics Association Joint Summits on Translational Science, March 28, 2017, San Francisco, CA, USA.
2016. “Discovering representational differences between pathway knowledge bases for pathway resource merging.” American Medical Informatics Association Annual Symposium, November 15, 2016, Chicago, IL, USA.
2016. “Auditing tree-like organ systems in the FMA using network motifs.” American Medical Informatics Association Annual Symposium, November 15, 2016, Chicago, IL, USA.
2016. “An analysis of differences in biological pathway resources.” Joint International Conference on Biological Ontology and BioCreative, August 3, 2016, Corvallis, OR, USA.
2016. “Identifying and resolving inconsistencies in biological pathway resources.” National Library of Medicine Informatics Training Conference, June 27, 2016, Columbus, OH, USA.
2015. “Biological model development as an opportunity to provide content auditing for the foundational model of anatomy ontology.” American Medical Informatics Association Annual Symposium, November 16, 2015, San Francisco, CA, USA.
2015. “Development of a discharge ontology to support postanesthesia discharge decision making.” International Conference on Biomedical Ontology, July 27, 2015, Lisbon, Portugal.
2015. “Ontological content auditing during model creation using the foundational model of anatomy.” National Library of Medicine Informatics Training Conference, June 23, 2015, Bethesda, MD, USA.

## TEACHING EXPERIENCE

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**Winter 2017 — BIME 591, Biological Pathway Analysis: Trends and Applications**  
*Department of Biomedical Informatics and Medical Education, University of Washington*  
 Developed all course material, available at: <http://uw.llwang.net/bime591/>

### Guest lectures

Jan 2018 — BIME 550, Knowledge Representation, “A SPARQL Tutorial.” Department of Biomedical Informatics and Medical Education, University of Washington

## RESEARCH & WORK EXPERIENCE

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2018. Research Assistant, Department of Radiology, University of Washington

2014–2018. NLM Graduate Trainee, Department of Biomedical Informatics and Medical Education, University of Washington

2017. Research Intern, Semantic Scholar Research, The Allen Institute for Artificial Intelligence

2013–2014. Software Engineer, Xcision Medical Systems, LLC.

2012–2014. Consulting Data Analyst, Skulpt Inc., formerly Convergence Medical Devices, Inc.

2011–2012. Research Data Coordinator, Asthma Clinical Research Center, Johns Hopkins Bloomberg School of Public Health

2009–2010. Research Assistant, Rutkove Lab, Department of Neurology, Beth Israel Deaconess Medical Center

## **SERVICE**

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2017–2019. Member, JAMIA Student Editorial Board

2017–2018. Manager, JAMIA Journal Club

2017–2018. Board Member, Nihon Ki-in Go Institute of the West (Seattle Go Center)

2018. Reviewer, AMIA Translational Bioinformatics Year in Review

2017–2018. Graduate Mentor, University of Washington High Performance Computing Club

2017. Assistant Editor, MedInfo 2017

2017. Reviewer, AMIA Translational Bioinformatics Year in Review

2015–2016. Curriculum Committee, Department of Biomedical Informatics and Medical Education, University of Washington

Reviewer for various journals and conferences such as AMIA Annual Symposium (2016, 2017), AMIA Translational Bioinformatics (2017), and JAMIA (2017)

## **PROFESSIONAL MEMBERSHIPS**

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2015–2019. American Medical Informatics Association (AMIA)

2015–2019. The International Association for Ontology and its Applications (IAOA)

2018–2019. American Association for the Advancement of Science (AAAS)

2018–2019. International Society for Computational Biology (ISCB)

2018–2019. Association for Computational Linguistics (ACL)