

# Mandy B. Korpusik

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## EDUCATION

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- 2019 Ph.D. in ELECTRICAL ENGINEERING AND COMPUTER SCIENCE  
Massachusetts Institute of Technology, Cambridge, MA
- 2015 S.M. in ELECTRICAL ENGINEERING AND COMPUTER SCIENCE  
Massachusetts Institute of Technology, Cambridge, MA
- 2013 B. S. in ELECTRICAL AND COMPUTER ENGINEERING  
Franklin W. Olin College of Engineering, Needham, MA

## GRANTS

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- 2022 \$50,000 Research Gift, eBay
- 2022 Faith & Justice Research Grant, LMU
- 2021 Capacity Building Grant, LMU, University Intercultural Council
- 2021 Continuing Faculty Grant, LMU, Seaver College of Science & Eng.
- 2021 Faith & Justice Course Development Grant, LMU
- 2020 Faith & Justice Research Grant, LMU
- 2020 Course Development Grant, LMU, Seaver College of Science & Eng.

## AWARDS

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- 2023 Faculty Fellow, LMU Center for Teaching Excellence
- 2022 Ascending Scholar Award, LMU
- 2021 Honorable Mentor Award, LMU Honors Program
- 2019 Paul L. Penfield Student Service Award, MIT EECS Department
- 2019 Semifinalist, MIT 100K Launch
- 2016 Service Award, Sidney Pacific Graduate Residence
- 2015 Fellowship, National Science and Engineering Graduate (NDSEG)
- 2015 Honorable Mention, NSF Graduate Research Fellowship
- 2014 Best Rated Poster Presentation Award: Demos, Spoken Language Technology Workshop (SLT), South Lake Tahoe

## TEACHING EXPERIENCE

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- 2020-2023 Instructor, Natural Language Processing, LMU
- 2019-2023 Instructor, Introduction to Computer Programming, LMU
- 2021 Instructor, Machine Learning, LMU
- 2020-2021 Instructor, Programming Lab, LMU
- 2016 CS Instructor, Women's Technology Program, MIT
- 2016 Co-Instructor, IAP Speech and Language Processing Course, MIT
- 2015 Kaufman Teaching Certificate Program, MIT

## RESEARCH INTERESTS

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My primary research interest is natural language processing and AI, especially spoken language understanding and dialogue systems. For my PhD, I designed novel convolutional neural network models that perform semantic tagging and mapping of natural language meal descriptions to semantically similar USDA food database entries. I also demonstrated that asking followup clarification questions with deep reinforcement learning boosts food

recall performance by narrowing down the search space. I am interested in developing conversational agents for health and wellness that provide personalized recommendations.

## CONFERENCE PROCEEDINGS

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- 2023 *Multi-modal Food Classification in a Diet Tracking System with Spoken and Visual Inputs.* S. Gowda\*, Y. Hu\*, M. Korpusik. ICASSP. (\* authors contributed equally)
- 2022 *Pacman Trainer: Classroom-Ready Deep Learning from Data to Deployment.* M. Kitamura, M. Korpusik, A. Forney. ASEE.
- 2022 *Impact of Late Policies on Submission Behavior and Grades in Computer Programming.* M. Korpusik, J. Freitas, J. Dionisio. ASEE.
- 2021 *A New Dataset for Natural Language Understanding of Exercise Logs in a Food and Fitness Spoken Dialogue System.* M. Epps, J. Uribe, M. Korpusik. SLT.
- 2019 *A Comparison of Deep Learning Methods for Language Understanding.* M. Korpusik, Z. Liu, J. Glass. Interspeech, Graz, Austria.
- 2019 *Dialogue State Tracking with Convolutional Semantic Taggers.* M. Korpusik, J. Glass. ICASSP.
- 2018 *Convolutional Neural Networks for Dialogue State Tracking without Pre-trained Word Vectors or Semantic Dictionaries.* M. Korpusik, J. Glass. SLT.
- 2018 *Convolutional Neural Networks and Multitask Strategies for Semantic Mapping of Natural Language Input to a Structured Database.* M. Korpusik, J. Glass. ICASSP.
- 2017 *Character-based Embedding Models and Reranking Strategies for Understanding Natural Language Meal Descriptions.* M. Korpusik, Z. Collins, J. Glass. Interspeech.
- 2017 *Semantic Mapping of Natural Language Input to Database Entries via Convolutional Neural Networks.* M. Korpusik, Z. Collins, J. Glass. ICASSP.
- 2016 *Distributional Semantics for Understanding Spoken Meal Descriptions.* M. Korpusik, C. Huang, M. Price, J. Glass. ICASSP.
- 2014 *Data Collection and Language Understanding of Food Descriptions.* M. Korpusik, N. Schmidt, J. Drexler, S. Cyphers, J. Glass. SLT.

## JOURNAL ARTICLES

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- 2021 *Use of Natural Spoken Language With Automated Mapping of Self-reported Food Intake to Food Composition Data for Low-Burden Real-time Dietary Assessment: Method Comparison Study.* S. Taylor\*, M. Korpusik\*, S. Das, C. Gilhooly, R. Simpson, J. Glass, S. Roberts. Journal of Medical Internet Research. (\*authors contributed equally)
- 2019 *Deep Learning for Database Mapping and Asking Clarification Questions in Dialogue Systems.* M. Korpusik, J. Glass. IEEE Transactions on Audio, Speech and Language Processing (ASLP).
- 2017 *Spoken Language Understanding for a Nutrition Dialogue System.* M. Korpusik, J. Glass. IEEE ASLP.

## WORKSHOPS

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- 2019 *A Food Logging System for iOS with Natural Spoken Language Meal Descriptions*. M. Korpusik, S. Taylor, S. Das, C. Gilhooly, S. Roberts, J. Glass. Nutrition 2019, Baltimore.
- 2019 *Testing the Validity of a Natural Spoken Language Application for the Self-monitoring of Daily Dietary Intake*. R. Silver, M. Korpusik, S. Taylor, S. Das, C. Gilhooly, J. Glass, S. Roberts. Nutrition 2019, Baltimore.
- 2019 *Convolutional Neural Encoder for the 7th Dialogue System Technology Challenge*. M. Korpusik, J. Glass. DSTC7 Workshop, Honolulu.
- 2016 *Recurrent Neural Networks for Customer Purchase Prediction on Twitter*. M. Korpusik, S. Sakaki, F. Chen, Y. Chen. CBRecSys, Boston.
- 2016 *Corpus for Customer Purchase Behavior Prediction in Social Media*. S. Sakaki, F. Chen, M. Korpusik, Y. Chen. LREC, Portoroz.

## INVITED TALKS

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- 2022 Tech Talk, eBay
- 2021 Keynote, [NAACL workshop on trustworthy NLP](#), MEXICO CITY, MEXICO
- 2020 Colloquium, HARVEY MUDD COLLEGE, CLAREMONT
- 2018 Talk, CMU, PITTSBURGH
- 2017 Panel, Young Female Researchers in Speech Workshop, KTH, SWEDEN

## CAMPUS TALKS

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- 2021 iSTEM Lightning Talk on Machine Learning, LMU, LOS ANGELES
- 2016 Pitch, Machine Intelligence Summit, PILLAR & MIT
- 2016 Talk, CSAIL Research Party, MIT
- 2016 Talk, CSAIL Advisory Board Meeting, MIT
- 2014 Talk, Women in Technology Program (WTP), MIT

## MEDIA COVERAGE

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- 2019 [Exploring the nature of intelligence](#), Kim Martineau, MIT NEWS
- 2019 [Inside AI](#), Rob May, INSIDEAI NEWSLETTER
- 2016 [Voice-controlled calorie counter](#), Larry Hardesty, MIT NEWS

## PATENTS

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- 2020 Korpusik, M. et al. A System and Method for Semantic Mapping of Natural Language Input to Database Entries via Convolutional Neural Networks. U.S. Patent 10817509.
- 2019 Korpusik, M. et al. Behavior Prediction on Social Media Using Neural Networks. U.S. Patent 10453099.

## SERVICE AND LEADERSHIP ACTIVITIES

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- 2022 Chair, Computer Science Culture and Climate Committee, LMU
- 2021 Project Kaleidoscope (PKAL) STEM Leadership Institute
- 2021 Organizer, [ACL-IJCNLP Meta-learning for NLP Workshop](#), BANGKOK
- 2021 Panel Reviewer, NSF
- 2016–2019 Sandbox Program, MIT
- 2015–2019 Venture Mentoring Service, MIT
- 2018 Rising Stars EECS Workshop, MIT
- 2018 MIT I-Corps Program, MIT
- 2016 Co-President, Graduate Women in Electrical Engineering and Computer Science (GW6), MIT
- 2015 Inventory Chair, Sidney Pacific Graduate Residence, MIT
- 2015 Academic Chair, Graduate Student Association (GSA), MIT
- 2015 Athletics Chair, Graduate Student Association (GSA), MIT
- 2012 President, Society of Women Engineers (SWE), OLIN COLLEGE