

James Pustejovsky

Department of Computer Science
Brandeis University
jamesp@brandeis.edu

Volen Center for Complex Systems
415 South St., Waltham, MA 02254
www.pustejovsky.com

Professional Preparation

- 1978** B.S. MIT, Cambridge, MA *Linguistics and Philosophy*
1979 DAAD Fellowship. Phillips Universität, Marburg, Germany, *Linguistics*
1985 Ph.D. University of Massachusetts, Amherst, *Linguistics*

Appointments

- 2009–Present** TJX Feldberg Chair in Computer Science at Brandeis University
2007–Present Director, Computational Linguistics MS Program, Brandeis University
2006–Present Chair, Language and Linguistics Program, Brandeis University
2000–Present Full Professor, Department of Computer Science, Brandeis University,
Director of Laboratory for Linguistics and Computation
1997–2001 Co-Founder, CTO, Lexeme/LingoMotors, Inc., Cambridge, MA
1992–2000 Associate Professor, Department of Computer Science, Brandeis
University
1986–1992 Assistant Professor, Department of Computer Science, Brandeis
University
1985–1986 Postdoctoral Researcher, Department of Computer and Information
Sciences, UMASS, Amherst

Books

- Pustejovsky, James and Elisabetta Jezek (2025) *Generative Lexicon Theory: A Modern Introduction*, Oxford University Press.
- Kordjamshidi, Paris, James Pustejovsky, Marie-Francine Moens (2025) *Spatial Language Understanding - Representation, Reasoning, and Grounding*, Springer
- Pustejovsky, James and Olga Batiukova. (2019) *The Lexicon*. Cambridge University Press.
- Ide, Nancy and James Pustejovsky (Eds.) (2017) *Handbook of Linguistic Annotation*, Springer.
- Mani, Inderjeet and James Pustejovsky. (2012). *Interpreting Motion: Grounded Representations for Spatial Language*. Oxford University Press.
- Pustejovsky, James and Amber Stubbs. (2012). *Natural Language Annotation for Machine Learning: A Guide to Corpus-Building for Applications*. O'Reilly Media.
- Pustejovsky, James, Pierrette Bouillon, Hitoshi Isahara, Kyoko Kanzaki, and Chungmin Lee, (Eds.) (2012) *Advances in generative lexicon theory*. Vol. 46. Springer Science & Business Media.

- Mani, Inderjeet, James Pustejovsky, and Robert Gaizauskas (Eds.). (2005). *The Language of Time: A Reader*. Oxford University Press.
- Pustejovsky, James and Branimir Boguraev. (Eds.). (1996). *Lexical Semantics: The Problem of Polysemy*. Clarendon Press.
- Pustejovsky, James. *The Generative Lexicon*. MIT Press, Cambridge, MA. 1995.
- Pustejovsky, James (Ed.) (1993) *Semantics and the Lexicon*, Kluwer Publishers.

Selected Publications by Research Area (focus on 2018-2024)

Computational and Theoretical Semantics for Natural Language

- Waldon, Brandon, Cleo Condoravdi, James Pustejovsky, Nathan Schneider, and Kevin Tobia. (to appear) "Reading Law with Linguistics: How Linguistic Theory And Data Inform Statutory Interpretation Of Artifact Nouns." *Harvard Journal on Legislation*.
- Obiso T, Tu J, Pustejovsky J (2024). *HaRMoNEE at SemEval-2024 Task 6: Tuning-based Approaches to Hallucination Recognition*. Proceedings of the 18th International Workshop on Semantic Evaluation (SemEval-2024). Proceedings of the 18th International Workshop on Semantic Evaluation (SemEval-2024); ; Mexico City, Mexico. Stroudsburg, PA, USA: Association for Computational Linguistics; c2024.
- Tu, Jingxuan and Xu, Keer and Yue, Liulu and Ye, Bingyang and Rim, Kyeongmin and Pustejovsky, James. (2024) *Linguistically Conditioned Semantic Textual Similarity*. In: Ku, Lun-Wei and Martins, Andre and Srikumar, Vivek, editor. Proceedings of the 62nd Annual Meeting of the Association for Computational Linguistics (Volume 1: Long Papers); Bangkok, Thailand: Association for Computational Linguistics..
- Tu, Jingxuan and Obiso, Timothy and Ye, Bingyang and Rim, Kyeongmin and Xu, Keer and Yue, Liulu and Brown, Susan Windisch and Palmer, Martha and Pustejovsky, James. (2024). *GLAMR: Augmenting AMR with GL-VerbNet Event Structure*. In: Calzolari, Nicoletta and Kan, Min-Yen and Hoste, Veronique and Lenci, Alessandro and Sakti, Sakriani and Xue, Nianwen, editor. Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024); Torino, Italia: ELRA and ICCL.
- Julia Bonn, Matthew J. Buchholz, Jayeol Chun, Andrew Cowell, William Croft, Lukas Denk, Sijia Ge, Jan Hajič, Kenneth Lai, James H. Martin, Skatje Myers, Alexis Palmer, Martha Palmer, Claire Benet Post, James Pustejovsky, Kristine Stenzel, Haibo Sun, Zdeňka Urešová, Rosa Vallejos, et al.. 2024. [Building a Broad Infrastructure for Uniform Meaning Representations](#). In *Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024)*, pages 2537–2547, Torino, Italia. ELRA and ICCL.
- Hall Maudslay, R., Teufel, S., Bond, F., & Pustejovsky, J. (2024). ChainNet: Structured metaphor and metonymy in WordNet. In *Proceedings of the 2024 Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING 2024)*. Torino, Italia. ELRA and ICCL.
- Krishnaswamy, Nikhil, Iris Oved, Joshua K. Hartshorne, and James Pustejovsky (2023). Meaning to Mean: A precondition for sentience and understanding in large language models. The Science of Consciousness Conference. Taormina, Sicily.
- Oved, Iris, Carlos Montemayor, Nikhil Krishnaswamy, James Pustejovsky, and Joshua

K. Hartshorne (2023). The view from outside the matrix: doing philosophy of mind and cognitive science with virtual worlds. The Science of Consciousness Conference. Taormina, Sicily.

- VanderHoeven, H., Bradford, M., Jung, C., Khebour, I., Lai, K., Pustejovsky, J., Krishnaswamy, N., and Blanchard, N. (2024). Multimodal Design for Interactive Collaborative Problem Solving Support. In International Conference on Human-Computer Interaction (HCII). Springer.
- Spaulding, Elizabeth, Kathryn Conger, Anatole Gershman, Mahir Morshed, Susan Windisch Brown, James Pustejovsky, Rosario Uceda-Sosa, Sijia Ge, and Martha Palmer. "PropBank goes Public: Incorporation into Wikidata." In *Proceedings of The 18th Linguistic Annotation Workshop (LAW-XVIII)*, pp. 166-175. 2024.
- Rim, Kyeongmin, and James Pustejovsky. "Integrated Annotation of Event Structure, Object States, and Entity Coreference." *EMNLP 2023* (2023): 71.
- Ye, Bingyang, Jingxuan Tu, Kyeongmin Rim, and James Pustejovsky. "Scalar Anaphora: Annotating Degrees of Coreference in Text." *EMNLP 2023* (2023): 28.
- Rim, Kyeongmin, Jingxuan Tu, Bingyang Ye, Marc Verhagen, Eben Holderness, and James Pustejovsky. "The Coreference under Transformation Labeling Dataset: Entity Tracking in Procedural Texts Using Event Models." In *The 61st Annual Meeting Of The Association For Computational Linguistics*. 2023.
- Bonn J, Cowell A, Hajic J, Palmer A, Palmer M, Pustejovsky J, Sun H, Uresova Z, Wein S, Xue N, Zhao J. "UMR Annotation of Multiword Expressions." In *Proceedings of the 4th International Workshop on Designing Meaning Representations*. 2023.
- Spaulding, Elizabeth, Kathryn Conger, Anatole Gershman, Rosario Uceda-Sosa, Susan Windisch Brown, James Pustejovsky, Peter Anick, and Martha Palmer. "The DARPA Wikidata Overlay: Wikidata as an ontology for natural language processing." In *Workshop on Interoperable Semantic Annotation (ISA-19)*, 2023.
- Lee, K., Krishnaswamy, N. and Pustejovsky, J., 2023, June. An Abstract Specification of VoxML as an Annotation Language. In *Workshop on Interoperable Semantic Annotation (ISA-19)* 2023.
- Henlein, Alexander, Anju Gopinath, Nikhil Krishnaswamy, Alexander Mehler, and James Pustejovsky. "Grounding human-object interaction to affordance behavior in multimodal datasets." *Frontiers in artificial intelligence* 6 (2023).
- Pustejovsky, J. "Forward to Annotation-based semantics for space and time in language, by Kiyong Lee." Cambridge University Press, (2023).
- Oved, Iris, Nikhil Krishnaswamy, James Pustejovsky, and Joshua K. Hartshorne. "Neither neural networks nor the language-of-thought alone make a complete game." *The Behavioral and brain sciences* 46 (2023): e285.
- Bonn, J., Myers, S., Van Gysel, J.E., Denk, L., Vigus, M., Zhao, J., Cowell, A., Croft, W., Hajič, J., Martin, J.H. and Palmer, A., Palmer, M., Pustejovsky, J., Uresova, Z., Vallejos, R., Xue, N. 2023. Mapping AMR to UMR: Resources for adapting existing corpora for cross-lingual compatibility. In *TLT 2023-21st International Workshop on Treebanks and Linguistic Theories (TLT, GURT/SyntaxFest 2023), Proceedings of the Conference* (Vol. 21). Association for Computational Linguistics.
- Componential Analysis of English Verbs (2022) Ghazaleh Kazeminejad, Martha Stone Palmer, Susan Windisch Brown and James Pustejovsky, *Frontiers in Artificial Intelligence - Language and Computation*

- Semantic Representations for NLP Using VerbNet and the Generative Lexicon (2022) Susan Windisch Brown, Julia Bonn, Ghazaleh Kazeminejad, Annie Zaenen, James Pustejovsky, and Martha Palmer, *Frontiers in Artificial Intelligence - Language and Computation*
- Batiukova, Olga and James Pustejovsky (2023), "The Lexicon", Oxford Bibliographies, Oxford University Press.
- Ye, Bingyang, Jingxuan Tu, Elisabetta Jezek, and James Pustejovsky. "Interpreting Logical Metonymy through Dense Paraphrasing." In *Proceedings of the Annual Meeting of the Cognitive Science Society*, vol. 44, no. 44. 2022.
- Tu, Jingxuan, Kyeongmin Rim, and James Pustejovsky. "Competence-based Question Generation." In *Proceedings of the 29th International Conference on Computational Linguistics*, pp. 1521-1533. 2022.
- Tu, Jingxuan, Eben Holderness, Marco Maru, Simone Conia, Kyeongmin Rim, Kelley Lynch, Richard Brutti, Roberto Navigli, and James Pustejovsky. "SemEval-2022 Task 9: R2VQ—Competence-based Multimodal Question Answering." In *Proceedings of the 16th International Workshop on Semantic Evaluation (SemEval-2022)*, pp. 1244-1255. 2022.
- Jens E. L. Van Gysel, Meagan Vigus, Jayeol Chun, Kenneth Lai, Sarah Moeller, Jiarui Yao, Tim O’Gorman, Andrew Cowell, William Croft, Chu-Ren Huang, Jan Hajič, James H. Martin, Stephan Oepen, Martha Palmer, James Pustejovsky, Rosa Vallejos & Nianwen Xue. "Designing a Uniform Meaning Representation for Natural Language Processing", submitted to KI - Künstliche Intelligenz (German Journal of Artificial Intelligence. 2021
- Kehat, Gitit, and James Pustejovsky. "Neural Metaphor Detection with Visibility Embeddings." In Proceedings of* SEM 2021: The Tenth Joint Conference on Lexical and Computational Semantics, pp. 222-228. 2021.
- Jezek, Elisabetta and Pustejovsky, James. "Dynamic interpretation of predicate-argument structure." Lingue e linguaggio 18. 2 (2020): 179-208.
- Brown, Susan Windisch, Julia Bonn, James Gung, Annie Zaenen, James Pustejovsky, and Martha Palmer. "VerbNet Representations: Subevent Semantics for Transfer Verbs." First International Workshop on Designing Meaning Representations, Association for Computational Linguistics, Florence, Italy. 2019.
- Donatelli, Lucia, Kenneth Lai, and James Pustejovsky. "A Two-Level Interpretation of Modality in Human-Robot Dialogue." 28th International Conference on Computational Linguistics, ACL COLING, December 2020.
- Lai, Kenneth, Lucia Donatelli, and James Pustejovsky. "A continuation semantics for abstract meaning representation." Second International Workshop on Designing Meaning Representations, December 2020.
- Pustejovsky, James. "From Actions to Events." *Interaction Studies* 19, no. 1-2 (2018): 289-317.
- Pustejovsky, James, and Elisabetta Jezek. "Semantic coercion in language: Beyond distributional analysis." *Italian Journal of Linguistics* 20, no. 1 (2008): 175-208.
- Mani, Inderjeet, James Pustejovsky, and Robert Gaizauskas, eds. *The language of time: a reader*. Oxford University Press, 2005.
- Mani, I., & Pustejovsky, J. (2012). *Interpreting motion: Grounded representations for spatial language* (No. 5). Oxford University Press.

- Pustejovsky, James, and Branimir Boguraev. "Lexical knowledge representation and natural language processing." *Artificial Intelligence* 63, no. 1-2 (1993): 193-223.
- Pustejovsky, James, and Nikhil Krishnaswamy. "Every Object Tells a Story." In *Proceedings of the Workshop Events and Stories in the News 2018*, pp. 1-6. 2018.
- Kehat, Gitit, and James Pustejovsky. "Improving Neural Metaphor Detection with Visual Datasets." In *Proceedings of The 12th Language Resources and Evaluation Conference*, pp. 5928-5933. 2020.

Multimodal Communication with Computers and Robots

- Tu, Jingxuan, Kyeongmin Rim, Bingyang Ye, Kenneth Lai and James Pustejovsky (under review) "Dense Paraphrasing for Multimodal Dialogue Interpretation", *Frontiers in Artificial Intelligence*.
- Zhu, Y., VanderHoeven, H., Lai, K., Bradford, M., Tam, C., Khebour, I., Brutti, R., Krishnaswamy, N., and Pustejovsky, J. (2024). Modeling Theory of Mind in Multimodal HCI. In International Conference on Human-Computer Interaction (HCII). Springer.
- Pustejovsky, J., & Zhu, Y. (2024). Lexical Event Models for Multimodal Dialogue. In International Conference on Human-Computer Interaction (HCII). Springer.
- Tam, C., Brutti, R., Lai, K., & Pustejovsky, J. "Annotating Situated Actions in Dialogue." In Proceedings of the Fourth International Workshop on Designing Meaning Representations, pp. 45-51. 2023.
- Khebour, I., Lai, K., Bradford, M., Zhu, Y., Brutti, R., Tam, C., Tu, J., Ibarra, B., Blanchard, N., Krishnaswamy, N., & Pustejovsky, J. (2024). Common Ground Tracking in Multimodal Dialogue. In Joint International Conference on Computational Linguistics, Language Resources and Evaluation (LREC-COLING).
- Ganesh, A., Chang, M. A., Dickler, R., Regan, M., Cai, J., Wright-Bettner, K., Pustejovsky, J., Martin, J., Flanigan, J., Palmer, M., Kann, K., Navigating Wonderland: Highlighting Off-Task Discussions in Classrooms, *International Conference on Artificial Intelligence in Education*, Springer Nature Switzerland, Pages 727-732, 2023/6/26
- Khebour, I., Brutti, R., Dey, I., Dickler, R., Sikes, K., Lai, K., Bradford, M., Cates, B., Hansen, P., Jung, C., Wisniewski, B., Terpstra, C., Hirshfield, L., Puntambekar, S., Blanchard, N., Pustejovsky, J., & Krishnaswamy, N. (2023). When Text and Speech are Not Enough: A Multimodal Dataset of Collaboration in a Situated Task. *Journal of Open Humanities Data*.
- Williams, T., Matuszek, C., Jokinen, K., Korpan, R., Pustejovsky, J., & Scassellati, B. (2023). Voice in the machine: Ethical considerations for language-capable robots. *Communications of the ACM*, 66(8), pp.20-23.
- D'Mello, S. K., Biddy, Q., Breideband, T., Bush, J., Chang, M., Cortez, A., Flanigan, J., Foltz, P. W., Gorman, J. C., Hirshfield, L., Ko, M.-L. M., Krishnaswamy, N., Lieber, R., Martin, J., Palmer, M., Penuel, W. R., Philip, T., Puntambekar, S., Pustejovsky, J., Reitman, J. G., Sumner, T., Tissenbaum, M., Walker, L., & Whitehill, J. (2024). From Learning Optimization to Learner Flourishing: Reimagining AI in Education at the Institute for Student-AI Teaming (iSAT) AI Magazine.
- Oved I, Krishnaswamy N, Pustejovsky J, Hartshorne J. (2023) *Neither neural networks nor the language-of-thought alone make a complete game*. Behavioral and Brain Sciences. September 46:-. doi: 10.1017/S0140525X23001954.
- Henlein A, Gopinath A, Krishnaswamy N, Mehler A, Pustejovsky J. [Grounding](#)

[human-object interaction to affordance behavior in multimodal datasets.](#) Frontiers in Artificial Intelligence.

- Krishnaswamy, Nikhil, and James Pustejovsky. "Affordance embeddings for situated language understanding." *Frontiers in Artificial Intelligence* 5 (2022).
- Pustejovsky, James and Nikhil Krishnaswamy (2022), "Multimodal Semantics for Affordances and Actions", Human Computer Interaction (HCI) International 2022.
- Brutti, Richard, Lucia Donatelli, Kenneth Lai, and James Pustejovsky. "Abstract Meaning Representation for Gesture." In *Proceedings of the Thirteenth Language Resources and Evaluation Conference*, pp. 1576-1583. 2022.
- Krishnaswamy, Nikhil, William Pickard, Brittany Cates, Nathaniel Blanchard, and James Pustejovsky. "The VoxWorld Platform for Multimodal Embodied Agents." In *Proceedings of the Thirteenth Language Resources and Evaluation Conference*, pp. 1529-1541. 2022.
- Donatelli, Lucia, Kenneth Lai, Richard Brutti, and James Pustejovsky. "Towards Situated AMR: Creating a Corpus of Gesture AMR." In *International Conference on Digital Human Modeling and Applications in Health, Safety, Ergonomics and Risk Management*, pp. 293-312. Springer, Cham, 2022.
- Pustejovsky, J. and Krishnaswamy, N. "Situated Meaning in Multimodal Dialogue: Human-Robot and Human-Computer Interactions." *Traitemet Automatique des Langues: Special Issue on Dialog and Dialog Systems* (2021).
- Krishnaswamy, Nikhil and Pustejovsky, James. "The Role of Embodiment in Human Computer Interaction: Experiments and Evaluation." HCI International 2021, Springer, April 2021.
- Pustejovsky, James and Nikhil Krishnaswamy. "The Role of Embodiment in Human Computer Interaction: Theory and Framework." HCI International 2021, Springer, 2021.
- Pustejovsky, James and Nikhil Krishnaswamy, Embodied Human Computer Interaction KI - Künstliche Intelligenz (German Journal of Artificial Intelligence), 2021.
- Krishnaswamy, Nikhil and Pustejovsky, James. "Neurosymbolic AI for Situated Language Understanding." Conference on Advances in Cognitive Systems (ACS), Cognitive Systems Foundation, August 2020.
- Krishnaswamy, Nikhil and Pustejovsky, James. "A Formal Analysis of Multimodal Referring Expressions Under Common Ground." International Conference on Language Resources and Evaluation (LREC), ELRA, May 2020.
- Krishnaswamy, N., Narayana, P., Bangar, R., Rim, K., Patil, D., McNeely-White, D. G., Ruiz, J., Draper, B., Beveridge, R., and Pustejovsky. "Diana's World: A Situated Multimodal Interactive Agent." AAAI Conference on Artificial Intelligence (AAAI): Demos Program, AAAI Press, February 2020.
- Krishnaswamy, N., Beveridge, R., Pustejovsky, J., Patil, D., McNeely-White, D. G., Wang, H., and Ortega, F. R.. "Situational Awareness in Human Computer Interaction: Diana's World." International Conference on Artificial Reality and Telexistence & Eurographics Symposium on Virtual Environments (ICAT-EGVE): Demos, ACM, December 2020.
- Pustejovsky, James and Krishnaswamy, Nikhil. "Embodied Human-Computer Interactions through Situated Grounding." International Conference on Intelligent Virtual Agents (IVA), ACM, October 2020.

- Krajovic, K., Krishnaswamy, N., Dimick, N. J., Salas, R. P., and Pustejovsky, J. "Situated Multimodal Control of a Mobile Robot: Navigation through a Virtual Environment." Special Session on Situated Dialogue with Virtual Agents and Robots (RoboDIAL): Late-Breaking Papers, ACL, July 2020.
- Pustejovsky, James, and Nikhil Krishnaswamy. "Generating Simulations of Motion Events from Verbal Descriptions." In *Proceedings of the Third Joint Conference on Lexical and Computational Semantics (*SEM 2014)*, pp. 99-109. 2014.
- Pustejovsky, James, and Nikhil Krishnaswamy. "VoxML: A Visualization Modeling Language." In *Proceedings of LREC 2016*, Osaka, Japan, 2016.
- Krishnaswamy, Nikhil, and James Pustejovsky. "VoxSim: A visual platform for modeling motion language." In *Proceedings of COLING 2016, the 26th International Conference on Computational Linguistics: System Demonstrations*, pp. 54-58. 2016.
- Narayana, P., Krishnaswamy, N., Wang, I., Bangar, R., Patil, D., Mulay, G., Rim, K., Beveridge, R., Ruiz, J., Pustejovsky, J. and Draper, B. Cooperating with avatars through gesture, language and action. In *Proceedings of SAI Intelligent Systems Conference* (pp. 272-293). Springer. 2018
- Krishnaswamy, Nikhil, Scott Friedman, and James Pustejovsky. "Combining Deep Learning and Qualitative Spatial Reasoning to Learn Complex Structures from Sparse Examples with Noise." In *Proceedings of AAAI 2019*, Honolulu, Hawaii. 2019.
- Krishnaswamy, Nikhil, and James Pustejovsky. "A Formal Analysis of Multimodal Referring Strategies Under Common Ground." *arXiv preprint arXiv:2003.07385* (2020).
- Narayana, Pradyumna, Nikhil Krishnaswamy, Isaac Wang, Rahul Bangar, Dhruva Patil, Gururaj Mulay, Kyeongmin Rim et al. "Cooperating with avatars through gesture, language and action." In *Proceedings of SAI Intelligent Systems Conference*, pp. 272-293. Springer, Cham, 2018.
- Krishnaswamy, Nikhil, and James Pustejovsky. "Situated Grounding Facilitates Multi-modal Concept Learning for AI", ViGiL Workshop at NeurIPS, 2019.

Natural Language Processing for Bioinformatics

- Dirkson, A.R., Verberne, S., Kraaij, W., Holderness, E., Jimeno Yepes, A., Lavelli, A., Minard, A.L., Pustejovsky, J. and Rinaldi, F., (2021). FuzzyBIO: a proposal for fuzzy representation of discontinuous entities. In *Proceedings of the 12th International Workshop on Health Text Mining and Information Analysis* (pp. 77-82). Association for Computational Linguistics.
- Qingyun Wang, Manling Li, Xuan Wang, Nikolaus Parulian, Guangxing Han, Jiawei Ma, Jingxuan Tu, Ying Lin, Ranran Haoran Zhang, Weili Liu, Aabhas Chauhan, Yingjun Guan, Bangzheng Li, Ruisong Li, Xiangchen Song, Heng Ji, Jiawei Han, Shih-Fu Chang, James Pus. "COVID-19 Literature Knowledge Graph Construction and Drug Repurposing Report Generation." Conference of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies - System Demonstration, ACL, June 2021.
- Jingxuan Tu, Marc Verhagen, Brent Cochran and James Pustejovsky. "Exploration and Discovery of the COVID-19 Literature through Semantic Visualization." Conference of the North American Chapter of the Association for Computational Linguistics - Human Language Technologies: Student Research Workshop, ACL, June 2021.

- Holderness, Eben, Nicholas Miller, Philip Cawkwell, Kirsten Bolton, Marie Meteer, James Pustejovsky, and Mei-Hua Hall. "Analysis of risk factor domains in psychosis patient health records." *Journal of biomedical semantics* 10. 1 (2020).
- Tu, Jingxuan, Marc Verhagen, Brent Cochran, and James Pustejovsky. "Exploration and Discovery of the COVID-19 Literature through Semantic Visualization." *arXiv preprint arXiv:2007.01800* (2020).
- Holderness, Eben, Antonio Jimeno Yepes, Alberto Lavelli, Anne-Lyse Minard, James Pustejovsky, and Fabio Rinaldi. "Proceedings of the Tenth International Workshop on Health Text Mining and Information Analysis (LOUHI 2019)." In *Proceedings of the Tenth International Workshop on Health Text Mining and Information Analysis (LOUHI 2019)*. 2019.
- Alvarez-Mellado, Elena, Eben Holderness, Nicholas Miller, Fyonn Dhang, Philip Cawkwell, Kirsten Bolton, James Pustejovsky, and Mei-Hua Hall. "Assessing the Efficacy of Clinical Sentiment Analysis and Topic Extraction in Psychiatric Readmission Risk Prediction." *EMNLP-IJCNLP 2019* (2019): 81.
- Pustejovsky, James, Joseé Castano, Jason Zhang, Maciej Kotecki, and Brent Cochran. "Robust Relational Parsing over Biomedical Literature: Extracting Inhibit Relation." In *Biocomputing 2002*, pp. 362-373. 2001.
- Pustejovsky, James, José Castano, Roser Saurí, A. Rumshinsky, Jason Zhang, and Wei Luo. "Medstract: creating large-scale information servers for biomedical libraries." In *Proceedings of the ACL-02 workshop on Natural language processing in the biomedical domain*, pp. 85-92. Association for Computational Linguistics, 2002.
- Pustejovsky, James, Brent Cochran, and Jose Castaño. "Medstract: natural language tools for mining the biobibliome." In *Proceedings of the second international conference on Human Language Technology Research*, pp. 413-415. Morgan Kaufmann Inc., 2002.
- Styler IV, W.F., Bethard, S., Finan, S., Palmer, M., Pradhan, S., de Groen, P.C., Erickson, B., Miller, T., Lin, C., Savova, G. and Pustejovsky, J., 2014. Temporal annotation in the clinical domain. *Transactions of the Association for Computational Linguistics*, 2, p.143.
- Bethard, Steven, Leon Derczynski, Guergana Savova, James Pustejovsky, and Marc Verhagen. "Semeval-2015 task 6: Clinical tempeval." In *Proceedings of the 9th International Workshop on Semantic Evaluation (SemEval 2015)*, pp. 806-814. 2015.

Visualization, Meta-models, and NLP Toolkits

- Verhagen, Marc, Kelley Lynch, Kyeongmin Rim, and James Pustejovsky. "The CLAMS Platform at Work: Processing Audiovisual Data from the American Archive of Public Broadcasting." In *Proceedings of the Thirteenth Language Resources and Evaluation Conference*, pp. 2498-2506. 2022.
- Ide, Nancy, Keith Suderman, Jingxuan Tu, Marc Verhagen, Shanan Peters, Ian Ross, John Lawson, Andrew Borg, and James Pustejovsky. "Evaluating Retrieval for Multi-domain Scientific Publications." In *Proceedings of the Thirteenth Language Resources and Evaluation Conference*, pp. 4569-4576. 2022.
- Hutchens, M., Krishnaswamy, N., Cochran, B., and Pustejovsky, J.. "Jarvis: A Multimodal Visualization Tool for Bioinformatic Data." International Conference on Human-Computer Interaction (HCII): Late-Breaking Papers, Springer, July 2020.

- Rim, Kyeongmin, Kelley Lynch, Marc Verhagen, Nancy Ide, and James Pustejovsky. "Interchange Formats for Visualization: LIF and MMIF." 12th Language Resources and Evaluation Conference, ELRA, May 2020.
- Rim, K., Tu, J., Lynch, K. and Pustejovsky. "Reproducing Neural Ensemble Classifier for Semantic Relation Extraction in Scientific Papers." The 12th Language Resources and Evaluation Conference, ELRA, May 2020.
- Rim, Kyeongmin, Jingxuan Tu, Kelley Lynch, and James Pustejovsky. "Reproducing Neural Ensemble Classifier for Semantic Relation Extraction in Scientific Papers." *COMPARE*, LREC 2020.
- Nancy Ide, James Pustejovsky, Christopher Cieri, Eric Nyberg, Di Wang, Keith Suderman, Marc Verhagen, Jonathan Wright: The Language Application Grid. *Proceedings of LREC 2014*: 22-30
- Marc Verhagen and James Pustejovsky. The TARSQI Toolkit. *Proceedings of LREC 2012*. Istanbul, Turkey. 2012.
- Pustejovsky, James, Nancy Ide, Marc Verhagen, and Keith Suderman. "Enhancing Access to Media Collections and Archives Using Computational Linguistic Tools." In *CDH at TLT*, pp. 19-28. 2017.
- Pustejovsky, J., Verhagen, M., Rim, K., Ma, Y., Ran, L., Liyanage, S., Murdock, J., McDonald, R. H., and Plale, B. (2017b). Enhancing access to digital media: The language application grid in the HTRC data capsule. In Proceedings of the Practice and Experience in Advanced Research Computing 2017 on Sustainability, Success and Impact, PEARC17, pages 60:1–60:3, New York, NY, USA. ACM.
- Ide, Nancy, Keith Suderman, Eric Nyberg, James Pustejovsky, and Marc Verhagen. "LAPPS/Galaxy: Current State and Next Steps." In *Proceedings of the Third International Workshop on Worldwide Language Service Infrastructure and Second Workshop on Open Infrastructures and Analysis Frameworks for Human Language Technologies (WLSI/OIAF4HLT2016)*, pp. 11-18. 2016.
- Kehat, Gิตית and Pustejovsky, James. "Improving Neural Metaphor Detection with Visual Datasets." 12th Language Resources and Evaluation Conference, May 2020.
- Ide, Nancy and James Pustejovsky. *The Handbook of Linguistic Annotation*, (Editors) Springer, Berlin, New York. 2017.
- Pustejovsky, James, and Amber Stubbs. *Natural Language Annotation for Machine Learning: A guide to corpus-building for applications*. " O'Reilly Media, Inc.", 2012.
- Boguraev, Branimir, and James Pustejovsky. *Corpus processing for lexical acquisition*. MIT Press, 1996.
- Pustejovsky, James, Patrick Hanks, Roser Sauri, Andrew See, Robert Gaizauskas, Andrea Setzer, Dragomir Radev et al. "The TimeBank corpus." *Corpus linguistics*, 2003.
- Pustejovsky, James, José M. Castano, Robert Ingria, Roser Sauri, R. J. Gaizauskas, Andrea Setzer, Graham Katz, and Dragomir R. Radev. "TimeML: Robust specification of event and temporal expressions in text." *New directions in question answering*, (2003)
- Pustejovsky, James. "ISO-Space: Annotating static and dynamic spatial information." In *Handbook of Linguistic Annotation*, pp. 989-1024. Springer, Dordrecht, 2017.

Temporal and Spatial Information Processing for Natural Language

- Mani, Inderjeet, Marc Verhagen, Ben Wellner, Chong Min Lee, and James Pustejovsky. "Machine learning of temporal relations." In *Proceedings of the 21st International*

Conference on Computational Linguistics and the 44th annual meeting of the Association for Computational Linguistics, pp. 753-760. Association for Computational Linguistics, 2006.

- Marc Verhagen, Amber Stubbs, Benjamin Harshfield and James Pustejovsky. Temporal Processing of Electronic Health Records. Presentation. Computational Linguistics In The Netherlands (CLIN). Utrecht Netherlands. 2010.
- UzZaman, Naushad, Hector Llorens, Leon Derczynski, James Allen, Marc Verhagen, and James Pustejovsky. "Semeval-2013 task 1: Tempeval-3: Evaluating time expressions, events, and temporal relations." In *Second Joint Conference on Lexical and Computational Semantics (* SEM), Volume 2: Proceedings of the Seventh International Workshop on Semantic Evaluation (SemEval 2013)*, vol. 2, pp. 1-9. 2013.
- Pustejovsky, James, and Jessica L. Moszkowicz. "The qualitative spatial dynamics of motion in language." *Spatial Cognition & Computation* 11, no. 1 (2011): 15-44.
- Pustejovsky, James. "The Syntax of Event Structure." *Cognition* 41:1-3 (1991): 47-81.

Synergistic Activities

- Program Co-chair COLING 2022, Gyeongju, South Korea October 11-19, 2022.
- Convener for International Standards Organization (ISO) TC37/SC 4 Working Group on Time (ISO-TimeML); Convener, International Standards Organization (ISO) TC37/SC 4 Working Group on Space (ISO-Space);
- PI on NSF grant: Integrating Dense Paraphrased-Enriched Representations with Large Language Models;
- Co-PI on NSF grant: AI Institute: Institute for Student-AI Teaming (iSAT), with CU-Boulder (lead); multimodal dialogue and common ground tracking.
- Co-PI on DARPA grant: TRACE: Transparency, Reflection, and Accountability in Conversational Exchanges, with CSU (lead); detecting and leveraging friction and common ground in multiparty multimodal interactions.
- Co-PI on Andrew W. Mellon Foundation grant: Computational Linguistic Resources for the American Archive of Public Broadcasting, with WGBH (lead);
- PI on Andrew W. Mellon Foundation: Transatlantic Collaboration between LAPPs and CLARIN: Semantic, Technical and Infrastructural Interoperability of Services: Connects the US-based LAPPs Grid with its European counterpart developed CLARIN.
- Editorial Board: Journals of Ontology, Lexicology, Language Resource and Evaluation, Rivista di Linguistica.
- Reviewer: AI Journal, Spatial Cognition and Computation, Linguistics, Linguistics and Philosophy, Computational Linguistics, Language, Journal of Pragmatics, COLING, ACL, HLT, LREC, AAAI, IJCAI, IWCS, ISA, EMNLP.