Tom M. Mitchell

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Research Interests:

Computer science, machine learning, artificial intelligence, cognitive neuroscience, and societal impacts of technology.

Positions Held:

Founders University Professor, Carnegie Mellon University, (2009-present)

Visiting Scholar, Digital Economy Lab, Stanford University, (2024-present)

Chief Technologist, Block Center for Technology and Society, Carnegie Mellon University, (2022-2025)

Interim Dean, School of Computer Science, Carnegie Mellon University, (2018-2019)

Chief AI Scientist, Squirrel AI, (2018-2021)

Department Head, Machine Learning Department, Carnegie Mellon University, (2006-2016)

Chief Scientist and Vice President, WhizBang! Labs. (2000-2001)

Professor, Computer Science, Robotics, and Language Technologies, CMU. (1986-present)

Assistant/Associate Professor, Department of Computer Science, Rutgers University. (1978-86)

Education:

Ph.D. Stanford University, Electrical Engineering, Computer Science minor. April, 1979.

S.B. Massachusetts Institute of Technology, Electrical Engineering. June, 1973.

Honors and Awards:

2025 15-year Classic Paper Award at the AAAI Conference

2024 Best Dataset Paper Award at the Learning at Scale Conference

2020 Best Paper Award at the User Interface Software and Technology (UIST) Conference

2018 President's Medal, Stevens Institute of Technology

2018 Alan Perlis Award for Imagination in Computer Science, Carnegie Mellon University

2017 10-Year Outstanding Research Contributions Award, Brain Informatics Conference

2016 Elected a member of the American Academy of Arts and Sciences

2015 Honorary Doctor of Laws degree, Dalhousie University

2010 Elected a member of the National Academy of Engineering

2008 Elected a Fellow of American Association for the Advancement of Science (AAAS)

2008 10-Year Best Paper Award at ICML/COLT.

2007 Distinguished Service Award, Association for Advancement of Artificial Intelligence

2003 Best Foundational Paper Award, American Medical Informatics Association (AMIA)

2002 Peter Debye Prize, Edmund Hustinx Foundation, University of Maastricht

1990 Elected Fellow of Association for the Advancement of Artificial Intelligence (AAAI)

1984 NSF Presidential Young Investigator Award.

1984 Best Paper Award, 21st IEEE Design Automation Conference.

1983 IJCAI Computers and Thought Award.

Professional Activities:

Co-Chair, U.S. National Academies study mandated by U.S. Congress, on the "current and future impact of artificial intelligence on the workforce of the United States across sectors.", 2022-2024.

Chair, Generative AI Task Force, Special Competitive Studies Project, a non-profit, non-partisan organization offering technical and policy advice to the U.S. government. Washington, D.C. 2023-2024.

Met with a variety of U.S. House and Senate members to brief them on AI technology, and to discuss how the U.S. government might guide the development of AI. 2022-present.

Provided lecture on Generative AI to 100 Senior U.S. Senate Staff, July 2023. (slides)

Testified to United States House of Representatives Member Roundtable on Automation and the Future of Work: Policy Responses, July 2018.

Co-Chair, U.S. National Academies study on "Information Technology, Automation, and the U.S. Workforce," 2016-2017.

Member, Standing Committee of the 100 Year Study of Artificial Intelligence, Stanford University, 2015-2018.

Member, US Department of Justice OJP Science Advisory Board Subcommittee on National Institute of Justice. 2011-2013.

Testified to United States House of Representatives Committee on Veterans' Affairs: use of artificial intelligence to improve benefits claims processing at the VA. January 2008.

Chair, American Association for the Advancement of Science, Section on Information, Computing, and Communication (2006-2007).

President, Association for the Advancement of Artificial Intelligence (AAAI) (2001-2003).

Member of U.S. National Research Council Computer Science and Telecommunications Board (1997-2006).

Chair, National Academy of Sciences Workshop on Information Fusion for Counter Terrorism, (June 2002).

Member of Editorial Board of *Journal of Machine Learning Research* (2001 2008).

Member of Editorial Board of *Cognitive Science* journal (2005-present).

Member of Editorial Board of *Journal of Artificial Intelligence Research* (1997-present).

Member of Editorial Board of *Artificial Intelligence* (1983-2008).

Co-founder and Associate Editor, *Machine Learning Journal*, Kluwer Academic Press, (1985-1989). Member of Editorial Board (1985-2001).

Co-founder of the International Conference on Machine Learning, and co-organizer of the first five annual conferences.

Books:

Machine Learning, T.M. Mitchell, McGraw Hill, 1997.

Mind Matters: A Tribute to Allen Newell, D. Steier and T. Mitchell (eds.), Erlbaum, 1996.

Recent Advances in Robot Learning, J. Franklin, T. Mitchell, and S. Thrun (eds.), Kluwer Academic Publishers, 1996.

Machine Learning: A Guide to Current Research, Mitchell, Carbonell, and Michalski, (eds)., Kluwer Academic Publishers, 1986

Machine Learning: An Artificial Intelligence Approach. Volume 2 Michalski, Carbonell, and Mitchell, (eds.), Morgan-Kaufman, 1986.

Machine Learning: An Artificial Intelligence Approach, Michalski, Carbonell, and Mitchell, (eds.), Tioga Press, 1983.

Selected Publications – Journals and Conferences

- Learning to Optimize Feedback for One Million Students: Insights from Multi-Armed and Contextual Bandits in Large-Scale Online Tutoring, R. Schmucker, N. Pachapurkar, S. Balas, M. Shah, and T. Mitchell. arXiv preprint arXiv:2508.00270, August 2025.

- Scientific Progress in Artificial Intelligence: History, Status, and Futures, E. Horvitz and T. Mitchell, in: Kathleen Hall Jamieson, Anne-Marie Mazza, and William Kearney (Eds.) (2024) *Realizing the Promise and Minimizing the Perils of AI for Science and the Scientific Community*. University of Pennsylvania Press, October, 2024.

- Automated Generation and Tagging of Knowledge Components From Multiple-Choice Questions S. Moore, R. Schmucker, T. Mitchell, and J. Stamper, *Learning at Scale Conference 2024*, July, 2024. **(received the conference Best Dataset Award)**

- Protecting Scientific Integrity in an Age of Generative AI, W. Balu, V. Cerf, et al., *Proceedings of the National Academy of Sciences*, Editorial, vol. 121, no. 22, May, 2024.

- Learning to Compare Hints: Combining Insights from Student Logs and Large Language Models, T. Zhang, H. Kumar, R. Schmucker, A. Azaria, T. Mitchell, *AAAI Workshop on AI for Education*, February, 2024.

- Ruffle and Riley: Towards the Automated Induction of Conversational Tutoring Systems, R. Schmucker, M. Xia, A. Azaria, T. Mitchell, *NeurIPS 2023 Workshop on Generative AI for Education (GAIED)*, December, 2023.

- Read and Reap the Rewards: Learning to Play Atari with the Help of Instruction Manuals, Y. Wu, Y. Fan, A. Azaria, Y. Li, T. Mitchell, *37th Conference on Neural Information Processing Systems*

(NeurIPS 2023), pp. 967--976, December, 2023.

- The Internal State of an LLM Knows When It's Lying, A. Azaria, T. Mitchell, *Findings of the Association for Computational Linguistics: EMNLP 2023*, pp. 967--976, December, 2023.

- Learning to Give Useful Hints: Assistance Action Evaluation and Policy Improvements, R. Schmucker, N. Pachapurkar, S. Bala, T. Mitchell, *Eighteenth European Conference on Technology Enhanced Learning, EC-TEL 2023*, September 2023.

- Plan, Eliminate, and Track : Language Models are Good Teachers for Embodied Agents,Y. Wu, S. Min, Y. Bisk, R. Salkhutdinov, A. Azaria, Y. Li, T. Mitchell, S. Prabhumoye, *arXi:2305.02412v2*, May, 2023.
- Combining computational controls with natural text reveals aspects of meaning composition, M. Toneva, T. Mitchell, L. Wehbe, *Nature Computational Science*, November, 2022.

- Assessing the Performance of Online Students -- New Data, New Approaches, Improved Accuracy, Robin Schmucker, Jingbo Wang, Shijia Hu, and Tom M. Mitchell, *Journal of Educational Data Mining*, June 2022.

- Transferable Student Performance Modeling for Intelligent Tutoring Systems, Robin Schmucker, Tom M. Mitchell. *arXiv preprint arXiv:2202.03980*, February 2022.

- Fringe News Networks: Dynamics of US News Viewership following the 2020 Presidential Election, Ashiqur R. KhudaBukhsh, Rupak Sarkar, Mark S. Kamlet, Tom M. Mitchell. *WebSci 2022: 14th ACM Web Science Conference*, June 2022.

- Conversational Multi-Hop Reasoning with Neural Commonsense Knowledge and Symbolic Logic Rules, Forough Arabshahi, Jenifer Lee, Antoine Bosselut, Yejin Choi, and Tom M. Mitchell, *Proceedings of the 2021 Conference on Empirical Methods in Natural Language Processing (EMNLP 2021)*.

- Assessing the Knowledge State of Online Students -- New Data, New Approaches, Improved Accuracy, Robin Schmucker, Jingbo Wang, Shijia Hu, and Tom M. Mitchell, *arXiv:2109.01753*, September, 2021.

- Screen2Vec: Semantic Embedding of GUI Screens and GUI Components, Toby Jia-Jun Li, Lindsay Popowski, Tom M. Mitchell, and Brad A. Myers, *Proceedings of the 2021 CHI Conference on Human Factors in Computing Systems (CHI 2021)*DOI:10.1145/3411764.3445049.

- We Don't Speak the Same Language: Interpreting Polarization through Machine Translation, Ashiqur R. KhudaBukhsh, Rupak Sarkar, Mark S. Kamlet, Tom M. Mitchell. In *Proceedings of the Conference on Artificial Intelligence (AAAI)*, 2021.

- When is Deep Learning the Best Approach to Knowledge Tracing?, Gervet, T., Koedinger, K., Schneider, J., & Mitchell, T., *Journal of Educational Data Mining*,12(3), 31-54. https://doi.org/10.5281/zenodo.4143614, October 2020.

- Multi-Modal Repairs of Conversational Breakdowns in Task-Oriented Dialogs, T. Li, J. Chen, H. Xia, T. Mitchell, and B. Myers, *Proceedings of the ACM Symposium on User Interface Software and*

Technology (UIST 2020),DOI: https://doi.org/10.1145/3379337.3415820, October 2020. *Best Paper Award*.

- Interactive Task Learning from GUI-Grounded Natural Language Instructions and Demonstrations, T. Li, T. Mitchell, and B. Myers, *Proceedings of the 58th Annual Meeting of the Association for Computational Linguistics: System Demonstrations (ACL 2020)*, DOI: 10.18653/v1/2020.acl-demos.25, July 2020.

- Contextual Parameter Generation for Knowledge Graph Link Prediction, G. Stoica, O. Stretcu, E. A. Platanios, T. Mitchell, and B. Poczos, *Proceedings of the 34th AAAI Conference on Artificial Intelligence (AAAI 2020)*, 2020.

- PUMICE: A Multi-Modal Agent that Learns Concepts and Conditionals from Natural Language and Demonstrations , T Li, M. Radensky, J. Jia, K. Singarajah, T. Mitchell, and B. Myers, *Proceedings of the 32nd Annual ACM Symposium on User Interface Software and Technology (UIST 2019)*, DOI: 10.18653/v1/2020.acl-demos.25. (3 minute demo video). October 2019.

- Relating Simple Sentence Representations in Deep Neural Networks and the Brain, S. Jat, P. Talukdar, and T. Mitchell, *Proceedings of the 57th Annual Meeting of the Association for Computational Linguistics (ACL 2019)*, pp. 5137--5154, 2019.

- The Lexical Semantics of Adjective-Noun Phrases in the Human Brain, A. Fyshe, G. Sudre, L. Wehbe, N. Rafidi, and T. Mitchell, *Human Brain Mapping*, DOI: 10.1002/hbm.24714, pp. 4457--4469, 2019.

- Contextual Parameter Generation for Universal Neural Machine Translation, E. A. Platanios, M. Scahan, G. Neurbig, and T. Mitchell, *Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2018.

- Never-Ending Learning, Tom M. Mitchell, W. Cohen, E. Hruschka, P. Talukdar, B. Yang, J., Betteridge, A. Carlson, B. Dalvi, M. Gardner, B. Kisiel, J. Krishnamurthy, N. Lao, K. Mazaitis, T. Mohamed, N. Nakashole, E. Platanios, A. Ritter, M. Samadi, B. Settles, R. Wang, D. Wijaya, A. Gupta, X. Chen, A. Saparov, M. Greaves, J. Welling. *Communications of the ACM*, 61(5), pp. 103-115, May 2018

- What Can Machine Learning Do? Workforce Implications, Erik Brynjolfsson and Tom M. Mitchell, *Science*, December 22, 2017 358:6370.

- Estimating Accuracy from Unlabeled Data: A Probabilistic Approach. Emmanoull Platanios, Hoifung Poon, Eric Horvitz and Tom M. Mitchell, *Neural Information Processing Systems (NIPS) 2017.*

- Track how Technology is Transforming Work, Tom M. Mitchell and Erik Brynjolfsson, *Nature*, April 20, 2017 544:290-292

- A Joint Sequential and Relational Modelfor Frame-Semantic Parsing , Bishan Yang and Tom Mitchell. *Conference on Empirical Methods on Natural Language Processing (EMNLP)*, 2017.

- Joint Concept Learning and Semantic Parsing from Natural Language Explanations, S. Srivastava, I. Labutov, T.M. Mitchell, *Conference on Empirical Methods on Natural Language Processing (EMNLP)*, 2017.

- Parsing Natural Language Conversations with Contextual Cues , S. Srivastava, A. Azaria, T.M. Mitchell. *International Joint Conference on Artificial Intelligence* 2017.

- Leveraging Knowledge Bases in LSTMs for Improving Machine Reading Bishan Yang and Tom Mitchell. *Proceedings of the Association for Computational Linguistics (ACL)*, 2017.

- Instructable Intelligent Personal Agent, A. Azaria, J. Krishnamurthy, T. M. Mitchell, In *National Conference on Artificial Intelligence (AAAI).* 2016

- Joint Extraction of Events and Entities within a Document Context, Bishan Yang and Tom Mitchell. *Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*, 2016.

- Joint Extraction of Events and Entities within a Document Context, Bishan Yang and Tom Mitchell. *Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL)*, 2016.

- Estimating Accuracy from Unlabeled Data: A Bayesian Approach, E. Platanios, A. Dubey, T. M. Mitchell, in *Proceedings of the International Conference on Machine Learning* (ICML), 2016.

- Translation Invariant Word Embeddings. M. Gardner, K. Huang, E. Papalexakis, X. Fu, P. Talukdar, C. Faloutsos, N. Sidiropoulos, T. Mitchell. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2015

- A Compositional and Interpretable Semantic Space. A. Fyshe, L. Wehbe, P. Talukdar, B. Murphy, T. Mitchell In *Proceedings of the 2015 Conference of the North American Chapter of the Association for Computational Linguistics: Human Language Technologies* (NAACL 2015).

- Efficient and Expressive Knowledge Base Completion Using Subgraph Feature Extraction. M. Gardner, T. Mitchell. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*, 2015.

- A Knowledge-Intensive Model for Prepositional Phrase Attachment. N. Nakashole, T. Mitchell. In *Proceedings of the 53rd Annual Meeting of the Association for Computational Linguistics (ACL)*, 2015.

- Learning a Compositional Semantics for Freebase with an Open Predicate Vocabulary. Jayant Krishnamurthy and Tom M Mitchell. In *Transactions of the Association for Computational Linguistics*, Volume 3, 2015.

- Weakly Supervised Extraction of Computer Security Events from Twitter. Alan Ritter, Evan Wright, William Casey and Tom M. Mitchell. In *Proceedings of the 24th International Conference on World Wide Web, (WWW)*, 2015.

- Machine Learning: Trends, Perspectives, and Prospects. Michael I. Jordan and Tom M. Mitchell, *Science* 349, 255, 2015. DOI: 10.1126/science.aaa8415.

- Never-Ending Learning. T. Mitchell, W. Cohen, E. Hruschka, P. Talukdar, J. Betteridge, A. Carlson, B. Dalvi, M. Gardner, B. Kisiel, J. Krishnamurthy, N. Lao, K. Mazaitis, T. Mohamed, N. Nakashole, E. Platanios, A. Ritter, M. Samadi, B. Settles, R. Wang, D. Wijaya, A. Gupta, X. Chen, A. Saparov, M. Greaves, J. Welling. *Proceedings of the Conference on Artificial Intelligence (AAAI)*, 2015.

- AskWorld: Budget-Sensitive Query Evaluation for Knowledge-on-Demand. M. Samadi, P. Talukdar, M. Veloso, T. Mitchell. In International Joint Conference on Artificial Intelligence (IJCAI), 2015.

- Identifying Autism from Neural Representations of Social Interactions: Neurocognitive Markers of Autism, Marcel A. Just, Vladimir L. Cherkassky, Augusto Buchweitz, Timothy A. Keller, Tom M. Mitchell, *PLOS One* DOI: 10.1371/journal.pone.0113879, December 2, 2014.

- Simultaneously uncovering the patterns of brain regions involved in different story reading subprocesses. L. Wehbe, B. Murphy, P. Talukdar, A. Fyshe, A. Ramdas, T. Mitchell, *PLOS One*, DOI: 10.1371/journal.pone.0112575, November 26, 2014. 2014. (supporting website).

- Aligning context-based statistical models of language with brain activity during reading . Leila Wehbe , Ashish Vaswani, Kevin Knight, Tom M. Mitchell, *Proceedings of the 2014 Conference on Empirical Methods in Natural Language Processing (EMNLP-2014)*, 2014.

- Estimating Accuracy from Unlabeled Data . E. A. Platanios, A. Blum, T. Mitchell. In *Uncertainty in Artificial Intelligence 2014 (UAI-2014)*, 2014.

- Joint Syntactic and Semantic Parsing with Combinatory Categorial Grammar J. Krishnamurthy, T. Mitchell. In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (ACL)*, 2014.

- Incorporating Vector Space Similarity in Random Walk Inference over Knowledge Bases. M. Gardner, P. Talukdar, J. Krishnamurthy and T.M. Mitchell. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP-2014)*, 2014.

- Language-Aware Truth Assessment of Fact Candidates. N. Nakashole, T. Mitchell. In *Proceedings of the 52nd Annual Meeting of the Association for Computational Linguistics (ACL-2014)*, 2014.

- Multivariate analysis of correlation between electrophysiological and hemodynamic responses during cognitive processing. J Kujala, G Sudre, J Vartiainen, M Liljeström, T Mitchell, R Salmelin *NeuroImage 92, 207-216*, 2014.

- Turbo-SMT: Accelerating Coupled Sparse Matrix-Tensor Factorizations by 200x, Evangelos Papalexakis, Tom Mitchell, Nicholas Sidiropoulos, Christos Faloutsos, Partha Pratim Talukdar, Brian Murphy, *SDM 2014*, Philadelphia, PA, USA, 2014.

- Improving Learning and Inference in a Large Knowledge-base using Latent Syntactic Cues. Matt Gardner, Partha Pratim Talukdar, Bryan Kisiel, and Tom Mitchell. In *Proceedings of the 2013 Conference on Empirical Methods in Natural Language Processing (EMNLP 2013)*, 2013.

- Vector Space Semantic Parsing: A Framework for Compositional Vector Space Models. Jayant Krishnamurthy and Tom M. Mitchell. in *Proceedings of the ACL 2013 Workshop on Continuous Vector Space Models and their Compositionality*, 2013.

- Tracking Neural Coding of Perceptual and Semantic Features of Concrete Nouns, Gustavo Sudre,

Dean Pomerleau, Mark Palatucci, Leila Wehbe, Alona Fyshe, Riitta Salmelin and Tom Mitchell, *NeuroImage*, 2012 Aug 1;62(1):451-63.

- Selecting Corpus-Semantic Models for Neurolinguistic Decoding, Brian Murphy, Partha Talukdar and Tom Mitchell, *Proceedings of the First Joint Conference on Lexical and Computational Semantics* (*SEM), Pages 114-123, June 2012.

- Hierarchical Latent Dictionaries for Models of Brain Activation, Alona Fyshe, Emily Fox, David Dunson and Tom Mitchell, International Conference on Artificial Intelligence and Statistics, 2012.

- Acquiring Temporal Constraints between Relations. P.P. Talukdar, D.T. Wijaya and T.M. Mitchell. In *Proceedings of the Conference on Information and Knowledge Management* (CIKM), 2012

- Weakly Supervised Training of Semantic Parsers. J. Krishnamurthy and T.M. Mitchell. In *Proceedings of the 2012 Conference on Empirical Methods in Natural Language Processing and Computational Natural Language Learning* (EMNLP-CoNLL), 2012.

- Coupled Temporal Scoping of Relational Facts. P.P. Talukdar, D.T. Wijaya and T.M. Mitchell. In *Proceedings of the ACM International Conference on Web Search and Data Mining* (WSDM), 2012.

- Discovering Relations between Noun Categories. T. Mohamed, E.R. Hruschka Jr. and T.M. Mitchell. In *Proceedings of the Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2011.

- Random Walk Inference and Learning in A Large Scale Knowledge Base. N. Lao, T.M. Mitchell, W.W. Cohen In *Proceedings of the Conference on Empirical Methods in Natural Language Processing* (EMNLP), 2011.

- Human Computation for Attribute and Attribute Value Acquisition, E. Law and B. Settles and A. Snook and H. Surana and L. von Ahn and T. Mitchell. *CVPR Workshop on Fine-Grained Visual Categorization*, 2011

- Which Noun Phrases Denote Which Concepts?. J. Krishnamurthy, T.M. Mitchell. In *Proceedings of the 49th Annual Meeting of the Association for Computational Linguistics* (ACL), 2011.

- Toward an Architecture for Never-Ending Language Learning. A. Carlson, J. Betteridge, B. Kisiel, B. Settles, E.R. Hruschka Jr. and T.M. Mitchell. In *Proceedings of the Conference on Artificial Intelligence* (AAAI), 2010.

- Learning to Tag From Open Vocabulary Labels, E. Law, B. Settles and T. Mitchell, *ECML*, 2010.

- A Neurosemantic Theory of Concrete Noun Representation Based on the Underlying Brain Codes, Marcel A. Just, Vladimir L. Cherkassky, Sandesh Aryal, Tom M. Mitchell, *PLoS ONE* 5(1): e8622 DOI: 10.1371/journal.pone.0008622, January 13, 2010.

- Coupled Semi-Supervised Learning for Information Extraction, Andrew Carlson, Justin Betteridge, Richard C. Wang, Estevam R. Hruschka Jr. and Tom M. Mitchell, *Proceedings of the Third ACM International Conference on Web Search and Data Mining (WSDM)*, February, 2010.

- Mining Our Reality, Tom M. Mitchell, Perspective, *Science*, **326**, December 2009. DOI:10.1126/science.1174459

- Populating the Semantic Web by Macro-Reading Internet Text, Tom M. Mitchell, Justin Betteridge, Andrew Carlson, Estevam Hruschka, and Richard Wang, Invited paper, *Proceedings of the 8th International Semantic Web Conference (ISWC 2009)*, October 2009.

- Zero-Shot Learning with Semantic Output Codes, M. Palatucci, D. Pomerleau, G. Hinton, T. Mitchell *Neural Information Processing Systems (NIPS)*, 2009.

- Integrating Multiple-Study Multiple-Subject fMRI Datasets Using Canonical Correlation Analysis, I. Rustandi, M.A. Just, T.M. Mitchell. *Proceedings of the MICCAI 2009 Workshop: Statistical modeling and detection issues in intra- and inter-subject functional MRI data analysis*. September 2009.

- Modeling fMRI data generated by overlapping cognitive processes with unknown onsets using Hidden Process Models, R.A. Hutchinson, R.S. Niculescu, T.A. Keller, I. Rustandi, T.M. Mitchell, *NeuroImage* (2009), doi: 10.1016/j.neuroimage.2009.01.025.

- Coupling Semi-Supervised Learning of Categories and Relations, Andrew Carlson, Justin Betteridge, Estevam R. Hruschka Jr. and Tom M. Mitchell, *Proceedings of the NAACL HLT 2009 Workshop on Semi-supervised Learning for Natural Language Processing*, June 2009.

- Machine learning classifiers and fMRI: a tutorial overview, Pereira F., Mitchell T., Botvinick M., *NeuroImage*, Volume 45, Issue 1, Pages S199-S209, March 2009.

- Computational Models of Neural Representations in the Human Brain, (extended abstract) T.M. Mitchell, *DS 2008, Lecture Notes in Artificial Intelligence 5255*, J.-F. Boulicaut, M.R. Berthold, and T. Horvarth (Eds.), Springer-Verlag Berlin Heidelberg, pp. 26–27, 2008.

- Predicting Human Brain Activity Associated with the Meanings of Nouns, T. M. Mitchell, S. V. Shinkareva, A. Carlson, K.M. Chang, V. L. Malave, R. A. Mason, and M. A. Just, *Science*, **320**, 1191, May 30, 2008. DOI: 10.1126/science.1152876. Supporting Online Material. Supporting website.

- Using fMRI Brain Activation to Identify Cognitive States Associated with Perception of Tools and Dwellings, S.V. Shinkareva, R.A. Mason, V.L. Malave, W. Wang, T. M. Mitchell, and M. A. Just, *PLoS ONE* 3(1): e1394. doi:10.1371/journal.pone.0001394, January 2, 2008.

- Exploring Hierarchical User Feedback in Email Clustering; Yifen Huang and Tom Mitchell. Enhanced Messaging Workshop, AAAI 2008, Chicago, IL, July 2008

- Discovering a Semantic Basis of Neural Activity Using Simultaneous Sparse Approximation, M. Palatucci, T.M. Mitchell, and H. Liu International Conference on Machine Learning (ICML)-Sparse Optimization and Variable Selection Workshop, 2008.

- A Combined Expression-Interaction Model for Inferring the Temporal Activity of Transcription Factors, Y. Shi, I. Simon, T. Mitchell and Z. Bar-Joseph, *Proceedings of The 12th Annual International Conference on Research in Computational Molecular Biology (RECOMB*), 2008 Supporting website

- Inferring Gene Regulatory Relationships from Multiple Time Series Datasets′ Y. Shi, T. Mitchell and Z. Bar-Joseph , *Bioinformatics*, 23(6), pp. 755-63, 2007 Supporting website

- Continuous hidden process model for time series expression experiments, Y. Shi, M. Klustein, I. Simon, T. Mitchell, and Z. Bar-Joseph, *Bioinformatics (Proceedings of ISMB 2007)*, 23(13), pp i459-i467, 2007 Supporting website

- Feature Selection for Grasp Recognition from Optical Markers, L.Y. Chang, N. Pollard, T. Mitchell, and E.P. Xing, *Proceedings of the 2007 IEEE/RSJ Intl. Conference on Intelligent Robots and Systems (IROS 2007)*, pp. 2944-2950, October, 2007.

- Classification in Very High Dimensional Problems with Handfuls of Examples, M. Palatucci and T. Mitchell, *Principles and Practice of Knowledge Discovery in Databases (ECML/PKDD)*, Springer-Verlag, September, 2007

- The Discipline of Machine Learning, T. M. Mitchell, Machine Learning Department technical report CMU-ML-06-108, Carnegie Mellon University, July 2006.
- Extracting Knowledge about Users' Activities from Raw Workstation Contents, T. M. Mitchell, S. Wang, Y. Huang, A. Cheyer, *Proceedings of the 21st National Conference on Artificial Intelligence (AAAI-2006),* July 2006.
- Hidden Process Models, R. A. Hutchinson, T. M Mitchell, and I. Rustandi, *Proceedings of the International Conference on Machine Learning,* Pittsburgh, PA, June 2006.
- Text Clustering with Extended User Feedback, Y. Huang and T. Mitchell, *Proceedings of the ACM SIGIR Conference,* August, 2006.
- Decoding of Semantic Category Information from Single Trial fMRI Activation in Response to Word Stimul Using Searchlight Voxel Selection, F. Pereira, R. Mason, M. Just, T. Mitchell, N. Kriegeskorte, *12th Conference on Human Brain Mapping*, June, 2006.
- Classifying cognitive states associated with reading single words and two-word sentences, Svetlana V. Shinkareva, Robert A. Mason, Vicente L. Malave, Tom M. Mitchell, Marcel A. Just. *12th Conference on Human Brain Mapping*, June, 2006.
- Bayesian Network Learning with Parameter Constraints, R.S. Niculescu, T.M. Mitchell, R.B. Rao, *Journal of Machine Learning Research,* 7, pp. 1357–1383, July 2006.
- Semi-Supervised Text Classification Using EM, K. Nigam, A. McCallum, and T. Mitchell, in *Semi-Supervised Learning*, Olivier Chapelle, Bernhard Sch¨olkopf, and Alexander Zien (eds.), MIT Press, 2006.
- Exploring Predictive and Reproducible Modeling with the Single-Subject FIAC Data Set, X. Chen, F. Pereira, W. Lee, S. Strother, T. Mitchell, *Human Brain Mapping*, 2006.
- Learning to Identify Overlapping and Hidden Cognitive Processes from fMRI Data,R. Hutchinson, T.M. Mitchell, I. Rustandi, *11th Conference on Human Brain Mapping*, June, 2005.
- Predicting Dire Outcomes of Patients with Community Acquired Pneumonia, G.F.Cooper, V. Abraham, C. F. Aliferis, J M. Aronis, B. G. Buchanan, R. Caruana, M. J. Fine, J. E. Janosky, G. Livingston, T. Mitchell, S. Montik, and P. Spirtes, *Journal of Biomedical Informatics*, 38, 2005, pp. 347-366.
- Detecting Significant Multidimensional Spatial Clusters, D. Neill, A. Moore, F. Pereira, T. Mitchell, *Neural Information Processing Systems 2004*. December 2004.
- Learning to Decode Cognitive States from Brain Images, T.M. Mitchell, R. Hutchinson, R.S. Niculescu, F.Pereira, X. Wang, M. Just, and S. Newman, *Machine Learning*, Vol. 57, Issue 1-2, pp. 145-175. October 2004.
- Learning to Classify Email into Speech Acts, W. W. Cohen, V. R. Carvalho, T.M. Mitchell, *Empirical Methods in Natural Language Processing*, Barcelona, July 2004.
- Inferring Ongoing Activities of Workstation Users by Clustering Email , Y. Huang, D. Govindaraju, T. M. Mitchell, V. R. Carvalho, W. W. Cohen, *First Conference on Email and Spam*, Mountain View, CA, July 2004.
- Training fMRI Classifiers to Detect Cognitive States across Multiple Human Subjects , X. Wang, R. Hutchinson, and T. M. Mitchell, *Neural Information Processing Systems 2003*. December 2003.
- Classifying Instantaneous Cognitive States from fMRI Data, T. Mitchell, R. Hutchinson, M. Just, R.S. Niculescu, F. Pereira, X. Wang, *American Medical Informatics Association Symposium*,

October 2003. (received Best Foundational Paper Award)

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