Benjamin Lipkin
Curriculum Vitae
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Contact:

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Education:

2022 – Present   Massachusetts Institute of Technology, Cambridge, MA
                   Degree: Ph.D.   Cognitive Science
                   Advisors: Dr. Evelina Fedorenko, Dr. Roger Levy
2016 – 2020   University of Michigan, Ann Arbor, MI
                   Degree: B.Sc.   Computational Neuroscience
                   Advisor: Dr. David Brang
2012 – 2016   Bronx High School of Science, Bronx, NY

Research:

2023 – Present   Ph.D. Student Researcher, MIT
                   Advisors: Dr. Evelina Fedorenko, Dr. Roger Levy
2022 – 2023   Ph.D. Student Researcher (Rotational), MIT
                   Advisors: Dr. Joshua Tenenbaum, Dr. Roger Levy
2020 – 2022   Technical Research Associate, MIT
                   Advisor: Dr. Evelina Fedorenko
2018 – 2020   Research Assistant, University of Michigan, Ann Arbor, MI
                   Advisor: Dr. David Brang
2016 – 2018   Research Assistant, University of Michigan, Ann Arbor, MI
                   Advisor: Dr. Jill Becker
2014 – 2015   Research Assistant, Columbia University, New York, NY
                   Advisor: Dr. Eric Kandel

Preprints:

2023   Li R, Ben Allal L, Zi Y, Muennighoff N, Kocetkov D, Mou C, Marone M, Akiki C, Li J, Chim J, Liu Q, Zheltonozhskii E, Zhou TY, Wang T, Dehaene O, Davaadorj M, Lamy-Poirier J, Monteiro J, Shliazhko O, Gontier N, Meade N, Zebaze A, Yee MH, Umapathi LK, Zhu J, **Lipkin B**, Oblokulov M, Wang Z, Murthy R, Stillerman J, Patel SS, Abulkhanov D, Zocca M, Dey M, Zhang Z, Fahmy N, Bhattacharyya U, Yu W, Singh S, Luccioni S, Villegas P, Kunakov M, Zhdanov F, Romero M, Lee T, Timor N, Ding J, Schlesinger C, Schoelkopf H, Ebert J, Dao T, Mishra M, Gu A, Robinson J, Anderson CJ, Dolan-Gavitt B, Contractor D, Reddy S, Fried D, Bahdanau D, Jernite Y,

Ferrandis CM, Hughes S, Wolf T, Guha A, von Werra L, de Vries H. StarCoder: may the source be with you! *arXiv*.

2023   Shain C, Kean H, Casto C, **Lipkin B**, Affourtit J, Siegelman M, Mollica F, Fedorenko E. (under review). Graded sensitivity to structure and meaning throughout the human language network. *bioRxiv*.

2023   Bruffaerts R, Pongos A, Shain C, **Lipkin B**, Siegelman M, Wens V, Sjøgård M, Pantazis D, Blank I, Goldman S, De Tiège X, Fedorenko E. (under review). Functional identification of language-responsive channels in individual participants in MEG investigations. *bioRxiv*.

2023   Regev T*, **Lipkin B***, Boebinger D, Paunov A, Kean H, Norman-Haignere S, Fedorenko E. (under review). Preserved functional organization of human auditory cortex in individuals missing one temporal lobe from infancy. *bioRxiv*.

Conference Papers:

2023   Olausson TX*, Gu A*, **Lipkin B***, Zhang CE*, Solar-Lezama A, Tenenbaum JB, Levy R. (2023). LINC: A neuro-symbolic approach for logical reasoning by combining language models with first-order logic provers. *Proceedings of the Conference on Empirical Methods in Natural Language Processing (EMNLP)*.

2023   **Lipkin B**, Wong L, Grand G, Tenenbaum JB. (2023). Evaluating statistical language models as pragmatic reasoners. *Proceedings of the Annual Meeting of the Cognitive Science Society (CogSci)* & *Association for Computational Linguistics (ACL) Workshop on Natural Language Reasoning and Structured Explanations (NLRSE)*.

2022   Srikant S*, **Lipkin B***, Ivanova A, Fedorenko E, O'Reilly UM. (2022). Convergent representations of computer programs in human and artificial neural networks. *Advances in Neural Information Processing Systems (NeurIPS)*.

Journal Papers:

2023   Krishna S, Choudhury A, Keough MB, Seo K, Ni L, Kakaizada S, Lee A, Aabedi A, Popova G, **Lipkin B**, Cao C, Gonzalez CN, Sudharshan R, Egladyous A, Almeida N, Zhang Y, Molinaro AM, Venkatesh HS, Daniel AGS, Shamardani K, Hyer J, Chang EF, Findlay A, Phillips JJ, Nagarajan S, Raleigh DR, Brang D, Monje M, Hurvey-Jumper SL. (2023). Glioblastoma remodelling of human neural circuits decreases survival. *Nature*.

2022   **Lipkin B**, Tuckute G, Affourtit J, Small H, Mineroff Z, Kean H, Jouravlev O, Rakocevic L, Pitchett B, Siegelman M, Hoeflin C, Pongos A, Blank I, Kline M, Ivanova A, Shannon S, Sathe A, Hoffman M, Nieto-Castañón A, Fedorenko E. (2022). Probabilistic atlas for the language network based on fMRI data from >800 individuals. *Nature Scientific Data*.

2022   Shain C*, Paunov A*, Chen X*, **Lipkin B**, Fedorenko E. (2022). No evidence of theory of mind reasoning in the human language network. *Cerebral Cortex*.

2021   Aabedi A*, **Lipkin B***, Kaur J, Kakaizada S, Reihl S, Young JS, Lee AT, Krishna S, Chang EF, Brang D, Hervey-Jumper SL. (2021). Functional

	alterations in cortical processing of speech in glioma-infiltrated cortex. *PNAS*.
2021	Malik-Moraleda S, Cucu T, **Lipkin B**, Fedorenko, E. (2021). The domain-general Multiple Demand system is more active in bilinguals than mono-linguals during executive processing. *Neurobiology of Language*.
2021	Aabedi A, **Lipkin B**, Young JS, Krishna S, Kakaizada S, Kaur J, Berger M, Brang D, Hervey-Jumper SL. (2021). Spectro-temporal encoding of speech responses in glioma-infiltrated cortex. *Journal of Neurosurgery*.

Conference Abstracts:

2023	Shain C*, Paunov A*, Chen X*, **Lipkin B**, Fedorenko E. No evidence of theory of mind reasoning in the human language network. *Human Sentence Processing*.
2023	Aabedi A, **Lipkin B**, Young JS, Hinkley L, Findlay A, Daniel A, Krishna S, Umbach G , Surapaneni A, Kaur J, Berger MS, Molinaro A, Brang D, Nagarajan S, Hervey-Jumper SL. Electrophysiological patterns of glioma-induced neural network remodeling are a general property of brain tumors regardless of subtype. *Clinical Neurosurgery*. [Oral Presentation]
2022	Ozernov-Palchik O*, O'Brien A*, Romeo R, Small H, **Lipkin B**, Capella J, Gabrieli J, Fedorenko E. A developmental investigation of the language network in the brain. *Society for Neurobiology of Language*.
2022	Aabedi A, **Lipkin B**, Young JS, Hinkley L, Findlay A, Daniel A, Krishna S, Umbach G , Kaur J, Berger MS, Molinaro A, Brang D, Nagarajan S, Hervey-Jumper SL. Electrophysiological patterns of glioma-induced neural network remodeling are conserved across tumor subtype. *Society for Neuro-Oncology*.
2021	Small H*, **Lipkin B***, Affourtit J, Pongos A, Fedorenko E. Differential selectivity of the left and right hemisphere language regions for non-linguistic processing. *Society for Neurobiology of Language*. [Oral Presentation]
2019	**Lipkin B**, Plass J, Kakaizada S, Valdivia C, Sagher O, Hervey-Jumper SL, Brang D. Electrocorticographic recordings enable intraoperative language network mapping. *Society for Neuroscience*.

Invited Talks:

2023	Solving composite tasks with modular systems. Cog Lunch, MIT, Cambridge, MA.
2023	Functional programming and connections to cognitive representation. Santa Fe Institute intelligence workshop, Isaac Newton Institute, Cambridge, UK.
2022	Optimization pressures on the neural representational geometry of language. Cog Lunch, MIT, Cambridge, MA.
2022	Brain-behavior correlations: Low reliability and statistical power. TEvLab, MIT, Cambridge, MA.
2022	Probabilistic atlases of functional brain networks. Software Tools for Open Science Workshop, NIH Office of Data Science Strategy, Bethesda, MD.
2021	Human and artificial neural representations of computer programs. TEvLab, MIT, Cambridge, MA.

2020	The neural encoding of speech errors in patients with perisylvian brain tumors. Phonetics and Phonology Forum, UC Berkeley, Berkeley, CA.

Open-Source Software:

2023	ProbSem: framework for probabilistic semantic parsing. [50+ GitHub stars]

Awards & Fellowships:

2023	MIT Quality of Life Award [for CogLunch seminar organizing]
2023	Santa Fe Institute Complexity GAINs Summer Fellowship.
2022	MIT Presidential Graduate Fellowship.
2022	Computationally Enabled Integrative Neuroscience Fellowship.
2019	MCubed Scholars Research Fellowship.

Media Coverage:

2022	"This is your brain. This is your brain on code." *MIT News.* [Top 5 Dec. '22]

Ad Hoc Reviewing:

2023	Developmental Cognitive Neuroscience; Neural Information Processing Systems (NeurIPS); International Conference on Learning Representations (ICLR).
2022	International Conference on Machine Learning (ICML) [Top 10%]; Nature Scientific Data; Neural Information Processing Systems (NeurIPS).

Mentorship:

2023	Sofie Chung (UROP).
2023	Carol Jiang (UROP).
2021	Elsa Engeriser (UROP).

Service:

2024	ACL NLRSE Workshop Co-organizer
2023 – 2024	MIT BCS CogLunch Seminar Series Organizer

Volunteer:

2022 – Present	MIT Graduate Application Assistance Program. Cambridge, MA.
2021 – Present	Greater Boston Food Bank. Boston, MA.
2018 – 2019	FEMMES Workshop. Ann Arbor, MI.
2017	Eisenhower Center for TBI. Ann Arbor, MI.