Jonathan Rawski

Curriculum Vitae

Department of Linguistics & Language Development
San Jose State University San Jose, CA
✉ *jon.rawski@sjsu.edu*
🖥 *jrawski.info*

Employment & Affiliations

2021-present	**San Jose State University** Assistant Professor, Department of Linguistics & Language Development *tenure-track, on leave for 2023-2024*
2023-2024	**Massachusetts Institute of Technology** Visiting Professor, Department of Linguistics & Philosophy (invited position)
2016-2021	**Stony Brook University** Graduate Assistant, Computational Linguistics Lab Graduate Assistant, Department of Neurobiology and Behavior Research Fellow, Institute for Advanced Computational Science
2015-2016	**Higher School of Economics** Graduate Assistant, Theoretical Neuroscience Group & Neurolinguistics Laboratory
2012-2013	**University of Minnesota** Undergraduate Researcher, Department of Speech-Language-Hearing Sciences Student Manager & Research Assistant, NuMI Off-Axis Electron Neutrino Appearance (NOvA) Laboratory, Department of Physics

Research Areas

Linguistics	Phonology, Morphology, Learnability, Computational/Mathematical Linguistics
Computer Science	Algorithmic Learning Theory, Automata Theory, Formal Languages, Finite Model Theory, Machine learning

Education

2016–2021	**PhD, Linguistics**. Stony Brook University Dissertation: Structure and Learning in Natural Language Advisor: Jeffrey Heinz
2014– 2016	**MSc, Cognitive Science**. Higher School of Economics Thesis: Homeostasis in Harmonic Grammar Advisors: Boris Gutkin (HSE/Ecole Normale) and Paul Smolensky (Johns Hopkins)
2010– 2013	**BA, Linguistics**. University of Minnesota - Twin Cities

Non Degree-Conferring

2019	LSA Linguistic Institute
2017	Crete Summer School of Linguistics

2016	Visiting Graduate Student, Neural Theory Group, École Normale Supérieure, Paris
2015, 2016	New York-St. Petersburg Institute for Linguistics, Cognition, and Culture (NYI)
2016	Winter Mathematics School, Higher School of Economics, Moscow

Courses Taught

Primary Instructor

ESSLLI	Expressivity of Transformers: Logic, Circuits, and Formal Languages - Sum24 (Invited)
MIT	Special Topics in Linguistics: Learnability and Linguistic Theory - S24
	Topics in Computational Linguistics: Grammars & Representations - F23
San Jose State	Introduction to Linguistics - F21, S22, F22
	Speech Technology - F21, F22
	Sound & Communication - S23, F24
	Corpus Linguistics - S22
	Natural Language Processing - S22, S23, F24
Stony Brook	IACS Summer Youth Camp for Computational Linguistics - Sum20
	Human Language - Sum17
	Writing in Linguistics - W17, W18
	Advanced English Academic Writing - S17

Teaching Assistant

Stony Brook	Computational Linguistics - S21
	Language and Technology - F18, F20
	Language Acquisition - S18
	Human Language - F16
LSA Institute	Computational Phonology - Sum19
CreteLing Summer School	Introduction to Phonology - Sum17
HSE	Intro to Cognitive Science - F15, S16

Grants and Awards

2021	President's Award to Distinguished Doctoral Students, Stony Brook University
2018 – 2020	IACS Junior Researcher Fellowship
2017	Crete Summer School of Linguistics Fellowship (tuition, lodging)
2014 - 2016	Higher School of Economics Graduate Fellowship (tuition, lodging, stipend)
2014 - 2016	Russian Federation Graduate Scholarship
2012 - 2013	University of Minnesota UROP Grant (Co-PI with Peter Watson). "The Influence of Positive Correction on Phonological Learning"
2011 - 2013	North Central Electric League Scholarship
2010 - 2013	Tyer Hill Memorial Scholarship

Publications and Manuscripts

Note: author ordering is often alphabetical and/or prioritizes student authors

Journal Articles

in prep **Rawski, Jonathan**, Jeffrey Heinz, Logan Swanson. *Abductive Inference of Phonotactic Constraints*

in prep **Rawski, Jonathan**. *Computational Locality in Signed Phonology*

in revision Strobl, Lena, Dana Angluin, David Chiang, **Jonathan Rawski**, Ashish Sabharwal. *Transformers as Transducers.* Transactions of the Association for Computational Linguistics (TACL)

in revision Dolatian, Hossep and **Jonathan Rawski**. *Computational Locality in Nonlinear Morpho-phonology*

to appear Levenstein, Daniel, Aniello De Santo, Saskia Heijnen, Manjari Narayan, Freek J.W. Oude Maatman, **Jonathan Rawski**, Cory Wright. *The problem-ladenness of theory.* Computational Brain and Behavior

2023 **Rawski, Jonathan** and Lucie Baumont. *Modern Language Models Refute Nothing.* Lingbuzz preprint

2023 **Rawski, Jonathan**, Hossep Dolatian, Jeffrey Heinz and Eric Raimy. *Regular and Polyregular Theories of Reduplication.* Glossa

2021 Lambert, Dakotah, **Jonathan Rawski**, and Jeffrey Heinz. *Typology Emerges from Simplicity in Representations and Learning.* Journal of Language Modeling.

2021 **Rawski, Jonathan**, William Idsardi, and Jeffrey Heinz. *Comment on "Nonadjacent Dependency Processing in Monkeys, Apes, and Humans".* Science Advances

2021 Aronoff, Mark, **Jonathan Rawski**, and Wendy Sandler. *Talk Isn't So Cheap.* Inference.

2020 De Santo, Aniello and **Jonathan Rawski**. *What Can Formal Language Theory Do for Animal Cognition Studies?* Royal Society Open Science

2019 **Rawski, Jonathan** and Jeffrey Heinz. *No Free Lunch in Linguistics or Machine Learning: Reply to Pater.* Language, 95(1)

Paper-reviewed Conference Proceedings

2024 Sun, Zhouyi and **Jonathan Rawski**. *Tensor Product Representations of Regular Transductions.* Proceedings of the Society for Computation in Linguistics, volume 7.

2022 Valvoda, Josef, **Jonathan Rawski**, Naomi Saphra, Ryan Cotterell, Adina Williams. *Benchmarking Compositionality with Formal Languages.* Proceedings of COLING 2022

2021 Dolatian, Hossep, Jeffrey Heinz, and **Jonathan Rawski**. *Strong Generative Capacity of Morphological Processes.* Proceedings of the Society for Computation in Linguistics, volume 4. Association for Computational Linguistics.

2020 Nelson, Max, H. Dolatian, **J. Rawski**, B. Prickett. *Probing RNN Encoder-Decoder Generalization of Subregular Functions using Reduplication.* Proceedings of the Society for Computation in Linguistics, volume 3. Association for Computational Linguistics

2020   Dolatian, Hossep and **Jonathan Rawski**. *Multi-Input Strictly Local Functions for Templatic Morphology.* Proceedings of the Society for Computation in Linguistics, volume 3. Association for Computational Linguistics

2020   **Rawski, Jonathan** and Hossep Dolatian. *Multi-Input Strictly Local Functions for Tonal Phonology.* Proceedings of the Society for Computation in Linguistics, volume 3. Association for Computational Linguistics

2019   **Rawski, Jonathan**. *Tensor Product Representations of Subregular Formal Languages.* Proceedings of the International Joint Conference on Artificial Intelligence (IJCAI) workshop on Neural-Symbolic Learning and Reasoning

2019   Chandlee, Jane, R. Eyraud, J. Heinz, A. Jardine, **J. Rawski**. *Learning with Partially Ordered Representations.* In Proceedings of the 16th Meeting of on the Mathematics of Language (SIGMOL 2019), Association for Computational Linguistics (ACL).

Abstract-reviewed Conference Proceedings

2024   Li, Amy and **Jonathan Rawski**. *Regular Reduplication Across Modalities.* Proceedings of the Society for Computation in Linguistics.

2021   Koser, Nate, Hossep Dolatian, **Jonathan Rawski**, and Kristina Strother-Garcia. *Computational Restrictions on Iterative Prosodic Processes.* Proceedings of the Annual Meeting on Phonology.

2019   Dolatian, Hossep, **Jonathan Rawski**. *Finite-State Locality in Semitic Root-and-Pattern Morphology.* Proceedings of the 43rd Penn Linguistics Conference

2019   Chandlee, Jane, R. Eyraud, J. Heinz, A. Jardine, **J. Rawski**. *How the Structure of the Constraint Space Enables Learning.* Proceedings of the Society for Computation in Linguistics. Association for Computational Linguistics

2018   De Santo, A., **J. Rawski**, and J.E. Drury. *Quantified Sentences as a Window Into Prediction and Priming: An ERP Study.* Proceedings of the 54th Meeting of the Chicago Linguistics Society

2018   **Rawski, Jonathan**. *Subregular Complexity Across Speech and Sign.* Proceedings of the Society for Computation in Linguistics

2017   **Rawski, Jonathan**. *Phonological Complexity Across Speech and Sign.* Proceedings of the 53rd Meeting of the Chicago Linguistics Society

Peer-Reviewed Book Chapters

in prep   Heinz, Jeffrey, Jason Riggle, and **Jonathan Rawski**. *Learnability.* in Nasukawa, Samuels, Schwartz, Torkenczy (ed.), Wiley-Blackwell Companion to Phonology.

to appear   **Rawski, Jonathan**. *Compound Reduction in Signed Phonology.* in J. Heinz (ed.), Doing Computational Phonology.

to appear   Alena Aksenova, **Jonathan Rawski** Jeffrey Heinz, Thomas Graf. *The Computational Power of Harmony.* in Harry van der Hulst (ed.), The Oxford Handbook of Vowel Harmony.

2022   Heinz, Jeffrey and **Jonathan Rawski**. *Learnability.* in B. Elan Dresher and Harry van der Hulst (eds.), The Oxford Handbook of the History of Phonology.

2022   De Santo, Aniello and **Jonathan Rawski**. *Mathematical Linguistics and Cognitive Complexity.* in Danesi, Marco (ed.), The Springer Handbook of Cognitive Mathematics.

2022   Bakovic, Eric, Jeffrey Heinz, and **Jonathan Rawski**. *Phonological abstraction in the mental lexicon.* in Lila R. Gleitman, Anna Papafragou (ed.), The Oxford Handbook of the Mental Lexicon.

Presentations

Invited Lectures

2025, TBD	TBD Dagstuhl Institute Symposium on *Theory of Neural Language Models*
2024, May	Rethinking Poverty of the Stimulus Workshop on Theoretical Phonology, Concordia University
2024, May	Transductive Linguistics Redux Computational Linguistics Lecture Series, CUNY
2024, Apr	Mathematical Linguistics and Cognitive Complexity Linguistics Colloquium, Rutgers University
2024, Jan	Abductive Inference of Phonotactic Constraints Atelier de Phonologie, CNRS
2024, Jan	Learning (Sub)regular Transformations Automata Seminar, Institut de Recherche en Informatique Fondamentale, CNRS
2023, Nov	Computational Properties of Language Linguistics Department, Harvard University
2023, Sep	Rethinking Poverty of the Stimulus Cognitive Science Colloquium, University at Buffalo
2023, Sep	Rethinking Poverty of the Stimulus Language and Cognition Colloquium, Harvard University
2023, May	Learning Subregular Transformations. Dagstuhl Instute Symposium on *Regular Transformations*
2023, May	Rethinking Poverty of Stimulus Linguistics Colloquium, UC Irvine
2023, May	Rethinking Poverty of Stimulus UCLA Psycholinguistics Seminar
2023, Apr	Abductive Inference of Phonotactic Constraints Stanford P-Interest Seminar
2023, Jan	Regular & Polyregular Functions and Transformers. Formal Languages and Neural Networks (FLaNN) Seminar
2022, Oct	*Generative Capacity & the Linguistic Swampland* Linguistics Colloquium, UC Davis
2022, Jun	*Generative Capacity & the Linguistic Swampland* LINGUAE Seminar, Ecole Normale Superieure
2022, Jun	*Robustness in Sequential Pattern Learning Experiments* Department d'Etudes Cognitives, Ecole Normale Superieure

2022, Apr	*Three Mathematical Lessons about Language Learning* Guest Lecture, University of Utah
2022, Mar	*Language Emerges from Computability* Computer Science Dept, San Jose State
2021, Sep	*Finite-State models and distributed computation in phonology* Guest Lecture, UC Berkeley Linguistics Department
2021, Sep	*Abductive Learning of Phonotactic Constraints* UC Berkeley Linguistics Phorum
2021, Sep	*Typology Emerges from Computability* NLP Research Group, Monash University
2021, Jun	*Typology Emerges from Computability* Association for Computational Linguistics Special Interest Group on Typology (SIGTYP) Lecture Series
2020, Feb	*Understanding Machine Learning with Language and Tensors* *What Do Formal Languages Tell Us About Cognition?* *Phonology and the Chomsky Hierarchy* (2 Lectures) Concordia University, Montreal
2019, Nov	*Understanding Machine Learning with Language and Tensors.* Dept. of Physics and Astronomy, Stony Brook University
2019, May	*Subregular Morphology: Structures, Grammar, and Learning.* Computational Psycholinguistics Group, Waseda University, Tokyo, Japan
2019, May	*The Logical Nature of Phonology Across Speech and Sign.* Linguistics Department, New York University
2019, Mar	*How the Structure of the Constraint Space Enables Learning.* L'UFR Linguistique, Université Paris 7 Diderot
2018, Nov	*Learning with Partially Ordered Representations.* IACS Seminar Series, Stony Brook University
2018, Oct	*The Computational Nature of Phonology Across Speech and Sign.* *How the Structure of the Constraint Space Enables Learning.* Linguistics Department, University of Connecticut
2018, Mar	*The Logical Complexity of Phonology Across Speech and Sign.* Institut Jean Nicod, Ecole Normale Superieure
2016, Nov	*Homeostatic Reinforcement Learning for Harmonic Grammars.* Linguistics Department, Massachusetts Institute of Technology
2016, April	*Homeostasis in Harmonic Grammar* Laboratoire de Neurosciences Cognitives, Ecole Normale Superieure
2013, April	*Neuroplasticity and Second-Language Learning* Linguistics Colloquium, University of Minnesota

Conference and Workshop Talks

2024, Jun	Li, Amy and **Jonathan Rawski**. *Regular Reduplication Across Modalities.* Society for Computation in Linguistics.
2022, Oct	**Rawski, Jonathan** and Jeffrey Heinz. *BUFIA: Phonotactic Learning with Non-statistical Abductive Inference.* Tutorial given at Annual Meeting on Phonology

2022, Sep **Rawski, Jonathan** and Lucie Baumont. *Phonology and the Linguistic Swampland.* Stony Brook Workshop on Model Theoretic Representations in Phonology

2021, Jan Dolatian, Hossep, Jeffrey Heinz, and **Jonathan Rawski**. *Strong Generative Capacity of Morphological Processes.* Society for Computation in Linguistics

2020, Sep **Rawski, Jonathan** and Jeffrey Heinz. *What Does "Simplicity" Mean in Grammar Learning?.* Northeast Computational Phonology Circle.

2020, Jan Nelson, Max, H. Dolatian, **J. Rawski**, B. Prickett. *Probing RNN Encoder-Decoder Generalization of Subregular Functions Using Reduplication.* Society for Computation in Linguistics

2020, Jan Dolatian, Hossep and **Jonathan Rawski**. *Multi-Input Strictly Local Functions for Templatic Morphology.* Society for Computation in Linguistics

2019, Nov **Rawski, Jonathan**. *Tensor Product Representations of Subregular Constraints.* Northeast Computational Phonology Circle, Rutgers University.

2019, Aug **Rawski, Jonathan**. *Tensor Product Representations of Subregular Formal Languages.* 14th Neural-Symbolic Learning and Reasoning Workshop at the International Joint Conference on Artificial Intelligence (IJCAI), Macau.

2019, July **Rawski, Jonathan**, Aniello de Santo, Thomas Graf, Jeffrey Heinz. *Geometric Representations of Linguistic Structures and Computations.* Annual Meeting of the Society for Mathematical Psychology, Montréal, Canada.

2019, July Jane Chandlee, Remí Eyraud, Jeffrey Heinz, Adam Jardine, **Jonathan Rawski**. *Learning with Partially Ordered Representations.* 16th Meeting on the Mathematics of language (SIGMOL 2019). Toronto.

2019, June Jane Chandlee, Remí Eyraud, Jeffrey Heinz, Adam Jardine, **Jonathan Rawski**. *Learning with Partially Ordered Representations.* University of Reykjavik, Iceland. Workshop on Learning and Automata (LearnAut) at the ACM/IEEE Symposium on Logic in Computer Science (LICS 2019).

2019, May **Rawski, Jonathan**. *Grammars, Structures, and Learning with Sparse Data.* Stony Brook-Tokyo Institute of Technology Joint Meeting. Tokyo.

2019, May Jane Chandlee and **Jonathan Rawski**. *Learning with Locality Across Speech and Sign.* Workshop on Rules and Learning Strategies Across Spoken and Signed Language at the 43rd Generative Linguistics in the Old World Conference. Oslo.

2019, May Dolatian, Hossep and **Jonathan Rawski**. *The Computational Nature of Templatic Morphology.* 4th American International Morphology Meeting. New York.

2019, Apr Dolatian, Hossep and **Jonathan Rawski**. *The Computational Nature of Templatic Morphology.* Phonology in the NorthEast. Yale University

2019, Apr Dolatian, Hossep, **Jonathan Rawski**, Sedigheh Moradi. *Computational Implementation of Semitic Template Matching.* Annual Symposium on Arabic Linguistics. Toronto.

2019, Mar Dolatian, Hossep, **Jonathan Rawski**, Sedigheh Moradi. *The Computational Nature of Templatic Morphology.* 43rd Penn Linguistics Conference. UPenn, Philadelphia.

2018, Nov **Rawski, Jonathan**, Jane Chandlee, Remí Eyraud, Jeffrey Heinz, Adam Jardine. *How the Constraint Space Structure Enables Learning.* NorthEast Computational Phonology Circle. MIT, Boston.

2018, July	Graf, Thomas, A. Aksenova, A. de Santo, H. Dolatian, **J. Rawski**, S. Yang, J. Heinz. *Tiers and Relativized Locality Across Language Modules*. Parallels Between Phonology and Syntax Workshop. Meertens Institut, Amsterdam.
2018, May	**Rawski, Jonathan**, Jeffrey Heinz, Adam Jardine, Jane Chandlee. *How the Constraint Space Structure Facilitates Learning*. 10th North American Phonology Conference. Concordia University, Montreal.
2018, Apr	De Santo, A., **J. Rawski**, and J.E. Drury. *Quantified Sentences as a Window into Prediction and Priming: An ERP Study*. Talk. The 54th Annual Meeting of the Chicago Linguistic Society. University of Chicago.
2018, Mar	**Rawski, Jonathan**. *Pirates & Publishers*. Conference on The Social Responsibility of Intellectuals, New School for Social Research
2017, May	**Rawski, Jonathan**. *Phonological Complexity is Subregular: Evidence from Sign Language*. Talk. The 53rd Annual Meeting of the Chicago Linguistic Society. University of Chicago.
2016, Dec	**Rawski, Jonathan**. *Homeostatic Reinforcement Learning for Harmonic Grammars*. Talk. SYNC Conference, CUNY
2013, April	**Rawski, Jonathan**. *Neuroplasticity in Second Language Learning*. Talk. Minnesota Undergraduate Linguistics Symposium, St. Olaf University

Conference Posters

2024, Jun	Sun, Zhouyi and **Jonathan Rawski**. *Tensor Product Representations of Regular Transductions*. Society for Computation in Linguistics.
2020, Sep	Koser, Nate, Hossep Dolatian, **Jonathan Rawski**, and Kristina Strother-Garcia. *Computational Restrictions on Iterative Prosodic Processes*. Annual Meeting on Phonology, UC Santa Cruz.
2020, Jan	**Rawski, Jonathan** and Hossep Dolatian. *Multi-Input Strictly Local Functions for Tonal Phonology*. Proceedings of the Society for Computation in Linguistics, volume 3.
2019, Oct	Dolatian, Hossep and **Jonathan Rawski**. *Computing Tone: Input Strict Locality over Multiple Inputs*. Annual Meeting on Phonology, Stony Brook University.
2019, Jan	**Rawski, Jonathan**, Jeffrey Heinz, Adam Jardine, Jane Chandlee. *How the Structure of the Constraint Space Enables Learning*. Poster. Society for Computation in Linguistics Meeting, New York City
2018, May	**Rawski, Jonathan**, Jeffrey Heinz, Adam Jardine, Jane Chandlee. *Learning Within Linguistically Structured Constraint Spaces*. Joint Science Meeting, Stony Brook University.
2018, Jan	**Rawski, Jonathan**. *Subregular Complexity Across Speech and Sign*. Poster. Society for Computation in Linguistics Meeting, Salt Lake City
2017, Nov	De Santo, A., **J. Rawski**, and J.E. Drury. *ERP effects for quantifier complexity, priming, and truth-value in an auditory/visual verification task*. Society for the Neurobiology of Language Annual Meeting, Baltimore.
2017, Sept	**Rawski, Jonathan**, A. de Santo, and J. Heinz. *Reconciling Minimum Description Length with Grammar-Independent Complexity Measures*. Poster. MIT Workshop on Simplicity in Grammar Learning

2015, June	**Rawski, Jonathan**. *A Homeostatic Space for Optimality Theoretic Grammars.* Poster. Pronouns: Syntax, Semantics, Processing Conference, Moscow
2013, Aug	**Rawski, Jonathan**. *The Influence of Feedback On L2 Phonology Learning.* Poster. UROP Summer Symposium, University of Minnesota

Leadership, Service, and Affiliations

Journal Reviews

2024	Morphology
2023	NLLT
2022	Phonology, Computational Linguistics, TACL
2021	Biology
2020	Journal of Linguistics, Journal of Language Modeling
2019	Phil. Trans. Royal Society B: Biological Sciences
2018	Language

Conference and Grant service

2024	Reviewer, NSF Proposals
2024	Organizer, LSA Special Session on "Formal Language Theory in Phonology and Morphology
2023	Program Committee, Association for Computational Linguistics (ACL)
2023	Program Committee, International Conference on Grammatical Inference (ICGI)
2022	Area Chair, International Conference on Computational Linguistics (COLING)
2022,2023	Program Committee, ACL Special Interest Group on Computational Morphology and Phonology (SIGMORPHON)
2020-2022	Program Committee, Conference on Natural Language Learning (CoNLL)
2020	Reviewer, Cognitive Science Society Annual Meeting

Department/University

SJSU

2024-present	Director, MSc program in Computational Linguistics
2024-present	President's Advisory Committee on AI
2022-2023	College Curriculum Committee
2022-2023	LLD Student Association faculty advisor
2021-present	LLD Department Curriculum Committee
2021-present	LLD Department Student Advisor
2021-2023	Lead, Planning Committee for new MSc program "Computational Linguistics"
2021-2023	Planning Committee for new BSc program "Computer Science & Linguistics"
2021-2022	Department Hiring Committee

Stony Brook

2018-2020	Student President, Institute for Advanced Computational Science
2018	Organizer, Stony Brook-Yale-NYU-CUNY (SYNC) Conference
2017 - 2018	Organizer, Mathematical Linguistics Reading Group

2017	Organizer, Northeast Computational Phonology Workshop
2017	Organizer, Linguistics Colloquium Series

Students Supervised

Lena Strobl	Visiting PhD Student at MIT, Spring 2024
Andre Domingo	SJSU undergrad project "Learning Polyregular Functions with Transformers"
Alexey Genzel	High School project "Language Ideology and Criticism in the Constructed Language Community" (accepted as poster at LSA 2023)

Community Service

2017-2021	Volunteer, Community Solidarity Association Long Island Organized food redistribution from local groceries to local homeless shelters and people in need

Professional Memberships

2019-Present	Society for Mathematical Psychology
2017-Present	Linguistic Society of America
2017-2021	Society for the Neurobiology of Language