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# Laura Gwilliams

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## Education

- 2015–2020    *Ph.D., Psychology (focusing on Cognitive Neuroscience)*  
New York University, USA  
Thesis Title: Towards a mechanistic account of speech comprehension  
Supervisors: Alec Marantz and David Poeppel  
Committee: Eero Simoncelli, Liina Pyykkänen, Nima Mesgarani
- 2012–2013    *M.Sc., Cognitive Neuroscience of Language*  
Basque Center on Cognition, Brain and Language (BCBL), Spain  
Supervisors: Arthur Samuel and Phillip Monahan
- 2009–2012    *B.A., Linguistics*  
Cardiff University, UK  
Supervisor: Lise Fontaine

## Research positions

- 2020–present    *Post-doctoral Fellow, Chang Lab*  
University of California, San Francisco  
Supervisors: Edward Chang and Matthew Leonard
- 2013–2015    *Research Assistant, Neuroscience of language lab*  
New York University Abu Dhabi  
Supervisors: Alec Marantz and Liina Pyykkänen

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## Awards and Scholarships

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| 2022 | <i>Trainee Professional Development Award</i> , Society for Neuroscience (SfN)  |
| 2021 | <i>Glushko Dissertation Prize</i> , The Cognitive Science Society   |
| 2021 | <i>Douglas H. and Katharine Fryer Thesis Award</i> , New York University<br>(Award for Best Doctoral Thesis)                                  |
| 2020 | <i>Dissertation Award</i> , Society for the Neurobiology of Language  |
| 2020 | <i>Martin Braine Fellowship</i> , New York University   |
| 2019 | <i>William Orr Dingwall Dissertation Fellowship</i><br>Fellowship in the Cognitive, Clinical, and Neural Foundations of Language              |
| 2019 | <i>Facebook PhD Fellowship</i> , Facebook (Finalist)  |
| 2018 | <i>Trainee Professional Development Award</i> , Society for Neuroscience (SfN)  |
| 2018 | <i>Poster Prize</i> , Salzburg Mind Brain Annual Meeting (SAMBA)  |
| 2018 | <i>Travel Award</i> , Society for the Neurobiology of Language Conference   |
| 2018 | <i>Travel Award</i> , Cognitive Modelling and Computational Linguistics   |
| 2017 | <i>Travel Award</i> , Cognitive Computational Neuroscience Conference   |
| 2016 | <i>Dean's Travel Grant</i> , New York University  |
| 2016 | <i>Travel Award</i> , Society for the Neurobiology of Language Conference   |
| 2016 | <i>Helmsley Fellowship</i> Cold Spring Harbor<br>(Genetics and Neurobiology of Language Course attendance fee)                                |
| 2015 | <i>Henry M. MacCracken Fellowship</i> , New York University<br>(Full funding of PhD tuition and maintenance)                                  |
| 2012 | <i>Tuition Waiver</i> , Basque Center on Cognition, Brain and Language  |
| 2012 | <i>Dell Hymes Commendation for Academic Achievement</i> , Cardiff University<br>(Awarded to the top graduating student within the department) |

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## Publications

### Preprints & Manuscripts

- [1] **\*Gwilliams, L., \*Leonard, M.K., Sellers, K.K., Chung, J.E., Dutta, B., & Chang, E.F.** (in prep). Single neuron encoding of speech across cortical layers of the human superior temporal gyrus.
- [2] **\*Gwilliams, L., \*Metzger, S., \*Xu, D., Leonard, M.K., Sellers, K.K., Chung, J.E., Dutta, B., & Chang, E.F.** (in prep). Articulator encoding in human single neurons of motor cortex during listening and speaking.
- [3] **Gwilliams, L., Marantz, A., Poeppel, D. & King, JR.** (in prep). Parsing continuous speech into linguistic representations.
- [4] ElShafei, H., **Gwilliams, L.,** Cousijn, H., Harrison, P., Nobre, A. & Haegens, S. (submitted). Distinct roles for alpha and beta oscillations in information maintenance in working memory.
- [5] **\*Gwilliams, L., \*Brooks, T., Gramfort, A. & Marantz, A.** (in prep). Modelling stages of word recognition with concurrent eye-tracking and MEG recordings.
- [6] **Gwilliams, L.,** Flick, G., Marantz, A., Pylkkanen, L., Poeppel, D. & King, J.R. (submitted). MEG-MASC: a high-quality magento-encephalography dataset for evaluating natural speech processing. [arXiv](#)
- [7] Zuanazzi, A., Ripollés, P., Lin, WM., **Gwilliams, L.,** \*King, JR & \*Poeppel, D (submitted). Tracking the online construction of linguistic meaning through negation. [bioRxiv](#)
- [8] **Gwilliams, L.,** Marantz, A., Poeppel, D. & King, J.R. (under review). Top-down information flow drives lexical access when listening to continuous speech. [bioRxiv](#)
- [9] **Gwilliams, L., & Wallisch, P.** (under review). Immediate ambiguity resolution in speech perception based on prior acoustic experience. [PsyArXiv](#)

### Peer-reviewed articles

- [10] **\*Chung, J.E., \*Sellers, K.K., Leonard, M.K., Gwilliams, L., Xu, D., Dougherty, M., Kharazia, V., Welkenhuysen, M., Dutta, B., Chang, E.F.** (2022). High density single-unit human cortical recordings using the Neuropixels probe. *Neuron*. DOI: [10.1016/j.neuron.2022.05.007](#)
- [11] **Gwilliams, L., King, JR., \*Marantz, A. & \*Poeppel, D.** (2022). Neural dynamics of phoneme sequences: Position-invariant code for content and order. *Nature Communications*. DOI: [10.1038/s41467-022-34326-1](#)
- [12] Dikker, S., Mech, EM., **Gwilliams, L.,** West, T., Dumas, G. & Federmeier, KD. (2022). Exploring age-related changes in inter-brain synchrony during verbal communication. *Psychology of Learning and Motivation*. DOI: [10.1016/bs.plm.2022.08.003](#)
- [13] Iemi, L., **Gwilliams, L.,** Samaha, J., Auksztulewicz, R., Cycowicz, Y., King, JR., Thesen, T., Doyle, W., Devinsky, O., Schroeder, C.E., Melloni, L. & Haegens, S. (2021). Ongoing neural oscillations influence behavior and sensory representations by suppressing neuronal excitability. *NeuroImage*. DOI: [10.1016/j.neuroimage.2021.118746](#)
- [14] **\*Gwilliams, L., \*Blanco-Elorrieta, E., Marantz, A. & Pylkkänen, L.** (2021). Perceptual adaptation to accented speech: prefrontal cortex aids attunement in auditory cortices. *Nature Scientific Reports*. DOI: [10.1038/s41598-020-79640-0](#)

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- [15] **Gwilliams, L.** & King, JR. (2020). Recurrent processes support a cascade of hierarchical decisions. *eLife*. DOI: [10.7554/eLife.56603](https://doi.org/10.7554/eLife.56603)
  - [16] Dikker, S., Assaneo, F., **Gwilliams, L.**, Wang, L. & Kösem, A. (2020). MEG and Language: Using Magnetoencephalography to Study the Neural Basis of Language. *Neuroimaging Clinics of North America*. DOI: [j.nic.2020.01.004](https://doi.org/j.nic.2020.01.004)
  - [17] **Gwilliams, L.** (2020). Hierarchical oscillators in speech comprehension: A commentary on Meyer, Sun & Martin. *Language, Cognition and Neuroscience*. DOI: [10.1080/23273798.2020.1740749](https://doi.org/10.1080/23273798.2020.1740749)
  - [18] **Gwilliams, L.** (2019). How the brain composes morphemes into meaning. *Philosophical Transactions of the Royal Society B*. DOI: [10.1098/rstb.2019.0311](https://doi.org/10.1098/rstb.2019.0311)
  - [19] Stockall, L., Manouildiou, C., **Gwilliams, L.**, Neophytou, K., & Marantz, A. (2019). Prefix Stripping Re-Re-Re-visited: MEG Evidence. *Frontiers in Psychology*. DOI: [10.3389/fpsyg.2019.01964](https://doi.org/10.3389/fpsyg.2019.01964)
  - [20] **Gwilliams, L.**, Linzen, T., Poeppel, D., & Marantz, A. (2018). In spoken word recognition the future predicts the past. *Journal of Neuroscience*. DOI: [10.1523/JNEUROSCI.0065-18.2018](https://doi.org/10.1523/JNEUROSCI.0065-18.2018)
  - [21] **Gwilliams, L.**, Poeppel, D., Marantz, A., & Linzen, T. (2018). Phonological (un)certainly weights lexical activation. In *Proceedings of the 8th Workshop on Cognitive Modeling and Computational Linguistics (CMCL 2018)* (pp. 29-34). [arXiv](https://arxiv.org/abs/1808.08739)
  - [22] **Gwilliams, L.** & Marantz, A. (2018). Morphological representations are extrapolated from morpho-syntactic rules. *Neuropsychologia*. DOI: [10.1016/j.neuropsychologia.2018.04.015](https://doi.org/10.1016/j.neuropsychologia.2018.04.015)
  - [23] Brodbeck, C., **Gwilliams, L.** & Pylkkänen, L. (2016). Language in context: MEG evidence for modality general and specific responses to reference resolution. *eNeuro*. DOI: [10.1523/ENEURO.0145-16.2016](https://doi.org/10.1523/ENEURO.0145-16.2016)
  - [24] **Gwilliams, L.**, Lewis, G. & Marantz, A. (2016). Functional characterisation of letter-specific responses in time, space and current polarity using magneto-encephalography. *NeuroImage*. DOI: [10.1016/j.neuroimage.2016.02.057](https://doi.org/10.1016/j.neuroimage.2016.02.057)
  - [25] Brodbeck, C., **Gwilliams, L.** & Pylkkänen, L. (2015). EEG can track the time course of reference resolution in small visual worlds. *Frontiers in Psychology*. DOI: [10.3389/fpsyg.2015.01787](https://doi.org/10.3389/fpsyg.2015.01787)
  - [26] **Gwilliams, L.** & Marantz, A. (2015). Tracking non-linear prediction in a linear speech stream: Influence of morphological structure on spoken word recognition. *Brain and Language*. DOI: [10.1016/j.bandl.2015.04.006](https://doi.org/10.1016/j.bandl.2015.04.006)
  - [27] **Gwilliams, L.**, Monahan, P., & Samuel, A. (2015). Sensitivity to morphological composition: Evidence from grammatical and lexical decision tasks. *Journal of Experimental Psychology: Language, Memory and Cognition*. DOI: [10.1037/xlm0000130](https://doi.org/10.1037/xlm0000130)
  - [28] **Gwilliams, L.** & Fontaine, L. (2015). Indeterminacy in process type classification. *Functions of Language*. DOI: [10.1186/s40554-015-0021-x](https://doi.org/10.1186/s40554-015-0021-x)
  - [29] Politzer-Ahles, S. & **Gwilliams, L.** (2015). Involvement of prefrontal cortex in scalar implicatures: Evidence from magnetoencephalography. *Language and Cognitive Neuroscience*. DOI: [10.1080/23273798.2015.1027235](https://doi.org/10.1080/23273798.2015.1027235)

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## Conference proceedings

- [30] **Gwilliams, L.**, & King, JR. (2017). Performance-optimized hierarchical models only partially predict neural responses during perceptual decision making. *NIPS workshop: Cognitively Informed Artificial Intelligence: Insights From Natural Intelligence* [bioRxiv](#)
- [31] **Gwilliams, L.**, & King, JR. (2017). Perceptual decision making unfolds in a processing cascade within and across brain regions. *Cognitive Computational Neuroscience*.

## Published Datasets, Corpora and Open Source Code

- [1] \*Lewis, G., \*van Rijn, P., **Gwilliams, L.**, Larrouy-Maestri, P., Poeppel, D. & Ghitza, O. NyU-BU contextually controlled stories Corpus: NUBUC. DOI: [10.5281/zenodo.4075183](https://doi.org/10.5281/zenodo.4075183)
- [2] **Gwilliams, L.**, Flick, G., Marantz, A., Pytkkanen, L., Poeppel, D. & King, J.R. (submitted). MEG-MASC: a high-quality magento-encephalography dataset for evaluating natural speech processing. [arXiv](#)
- [3] Waskom, M., Larson, E., Brodbeck, C., Gramfort, A., Burns, S ... **Gwilliams, L.**, King, JR., Liu, D. nipy/PySurfer:0.10.0. [\[Link\]](#)
- [4] Larson, E., Gramfort, A., Engemann, DA., Leppakangas, J., Brodbeck, C ... **Gwilliams, L.**, ... mne-python-v1.2.0 [\[Link\]](#)

## Book chapters

- [1] **Gwilliams, L.** & Davis, M.H. (2021). Extracting language content from speech sounds: The information theoretic approach. In *The Auditory Cognitive Neuroscience of Speech Perception*. [Link](#)
- [2] **Gwilliams, L.** & Marantz, A. (in press). Neural processing of morphological structure in speech production, listening and reading. In *Current Issues in the Psychology of Language*.
- [3] Stockall, L. & **Gwilliams, L.** (in press). Distributed morphology and neurolinguistics. In *The Cambridge Handbook of Distributed Morphology*.
- [4] King, JR., **Gwilliams, L.**, Holdgraf, C., Sassenhagen, J., Barachant, A., Engemann, D., Larson, E. & Gramfort, A. (2020). Encoding and Decoding Framework to Uncover the Algorithms of Cognition. In *The Cognitive Neurosciences*.

## Presentations

### Invited talks

- [1] **Gwilliams, L.** (2022, December). Computational architecture of speech comprehension. *NeuroSpin*. Paris, France.
- [2] **Gwilliams, L.** (2022, November). Computational architecture of speech comprehension. *Psycholinguistics of Language Representation (PoLaR) Lab at UiT the Arctic University of Norway*. Tromsø, Norway.
- [3] **Gwilliams, L.** (2022, July). Parsing continuous speech into lexically bound sequences. *19th SIGMORPHON Workshop, NAACL*. Seattle, USA.

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- [4] **Gwilliams, L.** (2022, May). The computational architecture of speech comprehension. *Meta AI and ENS*. Paris, France.
  - [5] **Gwilliams, L.** (2022, March). The computational architecture of speech comprehension. *Max Planck Institute for Psycholinguistics*. Special Talk Series. Neurobiology of language: Key issues and ways forward II.
  - [6] **Gwilliams, L.** (2022, February). The computational architecture of speech comprehension. *New York University*. New York, USA.
  - [7] **Gwilliams, L.** (2021, November). Decoding the neural architecture of speech comprehension. *Duke University, Duke Institute for Brain Sciences*. North Carolina, USA.
  - [8] **Gwilliams, L.** (2021, April). Decoding the neural architecture of speech comprehension. *University of Massachusetts Amherst, Linguistics Department*. Amherst, USA.
  - [9] **Gwilliams, L.** (2021, April). Computational models of speech comprehension using neural time series. *University of California, Davis*. Davis, USA.
  - [10] **Gwilliams, L.** (2021, March). Decoding the neural architecture of speech comprehension. *University of Oxford*. Oxford, UK.
  - [11] **Gwilliams, L.** (2021, January). Decoding the neural architecture of speech comprehension. *Institute of Neuroscience and Psychology, University of Glasgow*. Glasgow, UK.
  - [12] **Gwilliams, L.** (2020, December). MEG studies of morphological representations. *Mini-Workshop on Morphological Processing*.
  - [13] **Gwilliams, L.** (2020, December). Decoding the neural architecture of speech comprehension. *University of Maryland*. Maryland, USA.
  - [14] **Gwilliams, L.** & King, JR. (2020, October). Is it that simple? The use of linear models in cognitive neuroscience. *Cognitive Computational Neuroscience*. Generative Adversarial Collaborations Debate.
  - [15] **Gwilliams, L.** (2020, October). Rapid transformation of phoneme sequences into (sub)lexical units. *Society for the Neurobiology of Language*. Symposia presentation.
  - [16] **Gwilliams, L.** (2020, October). Towards a mechanistic account of speech comprehension. *Society for the Neurobiology of Language*. Dissertation award talk.
  - [17] **Gwilliams, L.** (2020, July). Neural dynamics of phoneme sequencing. *Martin Lab, Max Planck Institute for Psycholinguistics*. Nijmegen, The Netherlands.
  - [18] **Gwilliams, L.** (2020, January). Recurrent processes emulate a cascade of hierarchical decisions. *Kriegeskorte Lab, Columbia University*. New York City, USA.
  - [19] **Gwilliams, L.** (2019, September). How can we model the computations of human language perception? *Cognitive, computational neuroscience: Breakout session host*. Berlin, Germany.
  - [20] **Gwilliams, L.** (2019, July). Transforming acoustic input into a hierarchy of linguistic representations. *Max Planck Institute for Empirical Aesthetics*. Frankfurt, Germany.
  - [21] **Gwilliams, L.** (2019, June). Transforming acoustic input into a hierarchy of linguistic representations. *BCBL*. Donostia, Basque Country.

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- [22] **Gwilliams, L.** (2019, May). Transforming acoustic input into a hierarchy of linguistic representations. *Bedny Lab, Johns Hopkins University*. Baltimore, USA.
  - [23] **Gwilliams, L.** (2019, April). Towards a mechanistic account of speech comprehension in the human brain. *University of Maryland*. Maryland, USA.
  - [24] **Gwilliams, L.** (2019, February). Transforming acoustic input into a hierarchy of linguistic representations. *École Normale Supérieure & Facebook AI Research*. Paris, France
  - [25] **Gwilliams, L.** (2018, December). Parsing continuous speech into linguistic representations. *Mesgarani Lab, Columbia University*. New York, USA.
  - [26] **Gwilliams, L.** (2018, November). Towards a mechanistic account of speech comprehension in the human brain. *brainLENS Lab, UCSF*. San Francisco, USA.
  - [27] **Gwilliams, L.** (2018, October). From brain responses to algorithms: advances in parsing the computational architecture of perceptual decision making with MEG and machine learning. *Perception and Brain Dynamics Lab, NYU Langone Medical Center*. New York, USA.
  - [28] **Gwilliams, L.** (2018, August). Towards a mechanistic account of speech comprehension in the human brain. *Trueswell Lab, University of Pennsylvania*. Philadelphia, USA.
  - [29] **Gwilliams, L.** (2018, July). Towards a mechanistic account of speech comprehension in the human brain. *Max Planck Institute for Empirical Aesthetics*. Frankfurt, Germany.
  - [30] **Gwilliams, L.** (2018, March). Back to the future: Investigating the neural mechanisms supporting speech comprehension. *Chang Lab, UCSF*. San Francisco, USA.
  - [31] **Gwilliams, L.** (2018, February). Back to the future: Investigating the neural mechanisms supporting speech comprehension. *Neuroscience Society, Columbia University*. USA.
  - [32] **Gwilliams, L.** (2018, January). Postdictive processing in spoken word recognition. *Mesgarani Lab, Columbia University*. New York, USA.
  - [33] **Gwilliams, L.** (2017, October). Decomposing hierarchical perceptual decision making. *Shadlen Lab, Columbia University*. New York, USA.
  - [34] **Gwilliams, L.** (2017, June). In spoken word recognition the future predicts the past. *Cognition and Brain Sciences Unit, Cambridge University*. Cambridge, UK.
  - [35] **Gwilliams, L.** (2016, November). In spoken word recognition the future predicts the past. *HLP Lab, University of Rochester*. New York, USA.
  - [36] **Gwilliams, L. & Marantz, A.** (2016, February). Taking morphology seriously: MEG studies of morphological representations. *Presentation at 17th international morphology meeting*. Vienna, Austria.

### Slide presentations

- [1] **\*Gwilliams, L., \*Leonard, M.K., Sellers, K.K., Chung, J.E., Dutta, B., & Chang, E.F.** (2022, October). Single neuron encoding of speech across cortical layers of the human superior temporal gyrus. *Presentation at Neurobiology of Language Conference*. Philadelphia, USA.

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- [2] \*Abrams, E., \*Gwilliams, L. & Marantz, A. (2019, August). Tracking the building blocks of pitch perception in auditory cortex. Presentation at *The Society for Music Perception and Cognition conference (SMPC)*. New York, USA.
  - [3] Gwilliams, L. & King, JR. (2018, August). From brain responses to algorithms: advances in parsing the computational architecture of perceptual decision making with MEG and machine learning. *Symposia presentation, BioMag*. Philadelphia, USA.
  - [4] Gwilliams, L., King, JR. & Poeppel, D. (2018, August). Parsing continuous speech into linguistic representations. Presentation at the *Society for the Neurobiology of Language Conference*. Québec City, Canada.
  - [5] Gwilliams, L., Poeppel, D. & Marantz, A., Linzen, T. (2018, January). Phonological (un)certainly weights lexical activation. Presentation at *Cognitive Modelling and Computational Linguistics (CMCL)*. Salt Lake City, USA.
  - [6] Gwilliams, L., Linzen, T., Neophytou, K., Poeppel, D. & Marantz, A. (2016, September). Phonological commitment and sensitivity to subphonemic detail are independent. Presentation at *AM-LAP*. Bilbao, Basque Country.
  - [7] Stockall, L., Manouilidou, C. Gwilliams, L. & Marantz, A. (2016, February). Un/Re-packing argument and event structure restrictions on prefixation: MEG evidence. *Workshop on the syntax of argument structure: empirical advancements and theoretical relevance*. Leipzig, Germany.
  - [8] Gwilliams, L. & Marantz, A. (2015, June). Abstract representation of the root morpheme: A magnetoencephalography study of spoken Arabic. Presentation at *The 9th Morphological Processing Conference*. Potsdam, Germany.
  - [9] Gwilliams, L. & Marantz, A. (2015, March). Decomposition of spoken Arabic words into root morphemes during processing: Evidence from magnetoencephalography. Presentation at *Linguistics in the Gulf 5 Conference*. Doha, Qatar.
  - [10] Gwilliams, L. & Marantz, A. (2015, March). Letter specific sensitivities in the brain: located in time, space and current direction. Presentation at *The Neuroscience of Language Workshop*, Abu Dhabi, UAE.
  - [11] Gwilliams, L. & Marantz, A. (2015, February). Non-linear processing of a linear speech stream. Presentation at *The NYUAD Annual Research Conference*, Abu Dhabi, UAE.
  - [12] Gwilliams, L. & Fontaine, L. (2014, July). Ambiguity in process type selection in systemic functional linguistics. Presentation at *The 25th European Systemic Functional Linguistics Conference*. Paris, France.
  - [13] Brodbeck, C., Gwilliams, L. & Pytkänen, L. (2014, February). Reference resolution and prediction in a visual world: MEG evidence from English and Arabic. Presentation at *The NYUAD Annual Research Conference*. Abu Dhabi, UAE.

### Poster presentations

- [1] \*Gwilliams, L., \*Leonard, M.K., Sellers, K.K., Chung, J.E., Dutta, B., & Chang, E.F. (2022, November). Single neuron encoding of speech across cortical layers of the human superior temporal gyrus. Poster presented at *Society for Neuroscience*. San Diego, USA.



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- [2] Degano, G., Donhauser, P., **\*Gwilliams, L.**, Merlo., P. & Golestani, N. (2022, November). Prosodic cues enhance the encoding of syntactic information during naturalistic speech perception. Poster presented at *Society for Neuroscience*. San Diego, USA.
  - [3] Zuanazzi, A., Ripollés, P., Lin, WM., **Gwilliams, L.**, **\*King, JR** & **\*Poeppel, D** (2022, October). Behavioral and neural dynamics of negation. Poster presented at *Neurobiology of Language Conference*. Philadelphia, USA.
  - [4] Lang, B., **\*Gwilliams, L.**, Blanco-Elorrieta, E. & Marantz, A. (2020, October). Do bilinguals better discriminate novel vowel contrasts? Neural correlates of perceptual assimilation using MEG decoding. Poster presented at *Society for Neurobiology of Language*. Virtual conference.
  - [5] **\*Abrams, E.**, **\*Gwilliams, L.** & Marantz, A. (2019, October). Tracking the building blocks of pitch perception in auditory cortex. Dynamic poster presented at *Society for Neuroscience*. Chicago, USA.
  - [6] **Gwilliams, L.**, Poeppel, D. & King, JR. (2019, March). Parsing continuous speech into linguistic representations. Poster presented at the *Cognitive Neuroscience Society Conference (CNS)*. San Fransisco, USA.
  - [7] **Gwilliams, L.**, King, JR. & Poeppel, D. (2018, November). Parsing continuous speech into linguistic representations. Poster presented at *Society for Neuroscience*. San Diego, USA.
  - [8] **Gwilliams, L.** & King, JR. (2018, August). Identifying the neural architecture of perceptual decision making with normative, shallow and deep neural network approaches. Poster presented at *BioMag*. Philadelphia, USA.
  - [9] **Gwilliams, L.** & King, JR. (2018, July). Perceptual decision making is supported by a hierarchical processing cascade in both biological and artificial neural networks. Poster presented at *cuttingEEG*. Paris, France.
  - [10] **Gwilliams, L.** & King, JR. (2018, July). Perceptual decision making is supported by a hierarchical processing cascade in both biological and artificial neural networks. Poster presented at the *Salzburg Mind Brain Annual Meeting (SAMBA)*. Salzburg, Austria.
  - [11] **Gwilliams, L.** & King, JR. (2018, March). Perceptual decision making is supported by a hierarchical processing cascade in both biological and artificial neural networks. Poster presented at the *Cognitive Neuroscience Society conference (CNS)*. Boston, USA.
  - [12] **\*Gwilliams, L.**, **\*King, JR.** & Poeppel, D. (2017, November). Decoding how the human brain parses continuous speech into linguistic representations. Dynamic poster presented at the *Society for Neuroscience*. Washington D.C., USA.
  - [13] **Gwilliams, L.** & King, JR. (2017, November). Uncovering the cascade of computations involved in ambiguity resolution: Decoding from MEG and neural network activity. Poster presented at the *2017 Society for the Neurobiology of Language Conference*. Baltimore, USA.
  - [14] **Gwilliams, L.** & King, JR. (2017, September). Perceptual decision making unfolds in a processing cascade within and across brain regions. Poster presented at *Annual Conference on Cognitive Computational Neuroscience*. New York, USA.
  - [15] **Gwilliams, L.** Linzen, T., Neophytou, K., Poeppel, D. & Marantz, A. (2016, September). Phonological commitment and sensitivity to subphonemic detail are independent Presentation at the *Society for the Neurobiology of Language*. London, UK.

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- [16] Mow, J., **Gwilliams, L.**, Khalighinsjad, B., Mesgarani, N. & Marantz, A. (2016, September). Encoding and organisation of phonemes by feature in STG. Poster presentation at the *Society for the Neurobiology of Language*. London, UK.
- [17] **Gwilliams, L.**, Linzen, T., Neophytou, K., Warnke, L., Poeppel, D & Marantz, A. (2016, April). Early and asymmetric sensitivity to phonological boundaries and within-category variation across hemispheres. Poster presented at the *2016 CNS Annual meeting*. New York, USA
- [18] Brodbeck, C., **Gwilliams, L.** & Pykkänen, L. (2016, April). Amodal reference resolution in medial parietal cortex. Poster presented at the *2016 CNS Annual meeting*. New York, USA
- [19] **Gwilliams, L.**, Linzen, T., Neophytou, K., Warnke, L., Poeppel, D & Marantz, A. (2016, March). Phoneme ambiguity is reflected very early in primary auditory cortex. Poster presented at the *29th Annual CUNY Conference on Human Sentence Processing*. Florida, USA
- [20] Brodbeck, C., **Gwilliams, L.** & Pykkänen, L. (2016, March). Modality general and specific brain responses during reference resolution. Poster presented at the *29th Annual CUNY Conference on Human Sentence Processing*. Florida, USA
- [21] **Gwilliams, L.** & Marantz, A. (2015, October). Representations stems you can't see: An MEG study of morphological decomposition. Poster presented at the *Society for the Neurobiology of Language Conference*. Chicago, USA
- [22] Stockall, L., **Gwilliams, L.**, Manouilidou, C. & Marantz, A. (2015, October). Access to lexical category and verb argument structure in the early stages of processing. Poster presented at the *Society for the Neurobiology of Language Conference*. Chicago, USA
- [23] Gaston, P., **Gwilliams, L.** & Marantz, A. (2015, October). The time-course of cohort restriction in syntactic context: MEG evidence for a single auditory word-form. Poster presented at the *Society for the Neurobiology of Language Conference*. Chicago, USA
- [24] Oseki, Y., **Gwilliams, L.**, Blanco-Elorrieta, E., Gaston, P., Pykkänen, L. & Marantz, A. (2015, October). Neural Dynamics of Morphological and Phrasal Composition. Poster presented at the *Society for the Neurobiology of Language Conference*. Chicago, USA
- [25] Brodbeck, C., **Gwilliams, L.** & Pykkänen, L. (2015, October). EEG can track the time course of successful reference resolution in small visual worlds. Poster presented at the *Society for the Neurobiology of Language Conference*. Chicago, USA
- [26] **Gwilliams, L.**, Lewis, G. & Marantz, A. (2014, August). Revealing the cortical dynamics of letter string perception. Poster presented at the *Society for the Neurobiology of Language Conference*. Amsterdam, Netherlands
- [27] Linzen, T., Gaston, P., **Gwilliams, L.** & Marantz, A. (2014, August). Competition and prediction in the auditory processing of morphologically complex words. Poster presented at the *Society for the Neurobiology of Language Conference*. Amsterdam, Netherlands.
- [28] **Gwilliams, L.**, Monahan, P. & Samuel, A. (2013, June). Why an Avalanche is faster than an Explosion. Poster presented at *The 8th international morphological processing conference*. Cambridge, UK.
- [29] **Gwilliams, L.**, Monahan, P. & Samuel, A. (2013, March). Decompositional processing of nominalisations. Poster presented at the *Basque Center on Cognition, Brain and Language (BCBL)*. San Sebastian, Spain.

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## Teaching

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|-----------|--|
| 2021&2022 | <i>Guest Lecturer</i> , New York University<br>Linguistics and Cognitive Science, Undergraduate<br>Instructor: Alec Marantz                          |
| 2021      | <i>Instructor</i> : Cognition and Natural Sensory Processing Workshop<br>Decoding models   |
| 2021      | <i>Instructor</i> , Universitat Rovira<br>Neurolinguistics Summer Course<br>Experimental design, neural recording techniques and statistical methods |
| 2018-2020 | <i>Tutor</i> , New York University<br>Advanced Stats, Undergraduate<br>Instructor: Pascal Wallisch   |
| 2018      | <i>Teaching Assistant</i> , New York University<br>Cognition, Undergraduate<br>Instructor: Pascal Wallisch   |
| 2018      | <i>Guest Lecturer</i> , Columbia University<br>Cognitive Neuroscience, Undergraduate   |
| 2017      | <i>Guest Lecturer</i> , New York University<br>Problem of Babel, Undergraduate<br>Instructor: Alec Marantz   |
| 2016      | <i>Teaching Assistant</i> , New York University<br>Mathematical Tools for Cognitive and Neural Science, Graduate<br>Instructor: Eero Simoncelli      |
| 2016      | <i>Guest Lecturer</i> , New York University<br>Neural Bases of Language: Auditory Lexical Access, Undergraduate<br>Instructor: Liina Pytkänen        |

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- 2016      *Guest Lecturer, New York University*  
Linguistics as a Cognitive Science, Undergraduate  
Instructor: Alec Marantz
- 2016      *Guest Lecturer, New York University*  
Neural Bases of Language: Perceptual Attunement, Undergraduate  
Instructor: Liina Pylkkänen

## **Supervision**

- 2022      *Alvincé Pongos, PhD Student, UC Berkeley Bio Engineering*  
Project: *Neural encoding of grammatical class during natural listening*
- 2022      *Jenn DiSanto, UCSF lab rotation student*  
Project: *Recurrent processes support speech-sound perception*
- 2020      *Praxal Patel, Center for Data Science Summer Project, New York University*  
Project: *Developing automated neural data analysis tools for neuro-typical and atypical populations*
- 2019–2020      *Ben Lang, Research Assistant, New York University*
- 2019–2020      *Ellie Abrams, Research Assistant, New York University*
- 2017      *Jessa Alexander, Intern, New York University*
- 2017      *Anna Cho, Honours student, New York University*  
Project: *Neurological mechanisms of perceptual attunement to accented speech*
- 2015–2016      *Lena Warnke, Honours student, New York University*  
Project: *Unconscious, arbitrary visual symbols as a cue for phoneme identification*

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## Service

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|-----------|---------------|--|
| 2022–     | Committee     | <i>Cognitive Computational Neuroscience</i>  |
| 2020–2022 | Review editor | <i>Frontiers in Psychology</i>   |
| Ad-hoc    | Reviewer      | <i>Nature Neuroscience, PNAS, eLife, PLOS Biology, Journal of Neuroscience, NeuroImage, Human Brain Mapping, Cognition, Frontiers in Neuroscience, Glossa, Neurobiology of Language, Experimental Psychology, European Journal of Neuroscience, Cerebral Cortex, Psychonomic Bulletin &amp; Review, Brain &amp; Language, PLOS ONE, Cortex</i> |
| Ad-hoc    | Reviewer      | <i>National Science Foundation (USA)</i>   |