

Education

- 2018–2023 **Linguistics PhD Program**, *University of Arizona*
2019–2021 **Human Language Technology MS Program**, *University of Arizona*
2012–2018 **Teacher Training Program, Magister**, *Karl-Franzens-Universität, Graz*, *Master Equivalent (5-year program)*

Academic Experience

Jobs

- March 2021– **Research Assistant**, *University of Arizona*, ToMCAT, Theory of Mind-based Cognitive Architecture for Teams
Within the ToMCAT project I lead a team that maintains and expands an event extraction (EE) system for finding team communication events, among other text-based NLP capabilities.
- Spring 2021 **Research Assistant**, *University of Arizona*, LIVES Project
Data restoration and support
- 2019–2020 **Research Assistant**, *University of Arizona*, *Linguistics*, Prof. Noam Chomsky
Aiding in data presentations and working on an independent research project.
- 2018–2020 **Teaching Assistant**, *University of Arizona*, *Linguistics*
- 2015–2016 **Research Assistant**, *University of Graz*, *Section of Theoretical English Linguistics*, *English Dep.*
Data collection for a research project on Actuality Entailments.

Teaching

- Fall 2020 **LING 300**. *Introduction to Syntax*. Standalone TA
- Spring 2020 **LING 150A**. *Languages in the World (Introduction to Languages and Linguistics)*. Section instructor/GTA
- Fall 2019 **LING/PHIL 211** *Language, Mind and Brain*. TA/instructional aide
- Spring 2019 **LING/ENG 322**. *The Structure and Meaning of Words (Introduction to Morphology and Morphosyntax)*. Standalone TA
- Fall 2018 **LING 150A**. *Languages in the World (Introduction to Languages and Linguistics)*. Section instructor/GTA

Publications

- forthcoming Nitschke, R. (2022). "On the Extended Projection of German Adjectives" In: Phoevos Panagiotidis and Moreno Mitrović (Eds.), *A⁰ – The Lexical Status of Adjectives* (LFAB 17), pages 219–256. John Benjamins. <https://benjamins.com/catalog/lfab.17.07nit>
- accepted Nitschke, R., Wang Y., Chen, C., Pyarelal, A. and Sharp, R. (2022). "Rule Based Event Extraction for Artificial Social Intelligence" In: *Proceedings of Pattern-based Approaches to NLP in the Age of Deep Learning*

- published Nitschke, R (2021). "Restoring the sister: Reconstructing a lexicon from sister languages using neural machine translation" In: *Proceedings of the First Workshop on Natural Language Processing for Indigenous Languages of the Americas*, pages 122–130, Online. Association for Computational Linguistics
- published Nitschke, R. (2020). Using Genetic Data to Make Linguistic Arguments: Are clicks evidence of late externalization?. *U. Penn Working Papers in Linguistics*, 26(1).

Talks Given

- 2022 **Rule Based Event Extraction for Artificial Social Intelligence**, *Gyeongju, Republic of Korea*, PAN-DL at COLING 2022
- 2022 **Homesign And The Speed Of Externalization: What homesigners can tell us about the externalization of language capacity**, *Quebec, Canada*, Première Conférence Internationale sur la Biolinguistique de l'UQTR
- 2021 **Neural Machine Translation Approaches for Vocabulary Reconstruction Tasks**, *NUI Galway, Ireland*, Cardamon Seminar Series
- 2019 **Using Genetic Evidence to Make Linguistic Arguments: pitfalls and opportunities**, *UPenn, Philadelphia*, PLC 43
- 2019 **Viel Geliebt: German participial adjectives and degree words**, *University of Arizona, Tucson*, Arizona Linguistics Circle 13
- 2018 **On the Extended Projection of German Adjectives**, *Bled-Slovenia*, A0: The Adjective as a Lexical Category

Posters

- 2022 **Lessons Learned from a Secondary Analysis Using Natural Language Processing and Machine Learning from a Lifestyle Intervention**, *Baltimore, MD*, 43rd Annual Meeting & Scientific Sessions of the Society of Behavioral Medicine, (as non-presenting co-author)
- 2021 **"Restoring the sister: Reconstructing a lexicon from sister languages using neural machine translation"**, *Online*, AmericasNLP at NAACL-HLT

Service

- 2022 **Reviewer for GPSC travel grants**
- 2019-2022 **Coyote Papers, Editor in Chief** <https://coyotepapers.sbs.arizona.edu/>
- 2022 **Volunteer for ALC16** <https://sites.google.com/view/alc16/home>
- 2021 **Volunteer for ALC15** <https://sites.google.com/view/alc15>
- 2020 **LING Department Graduate Student Faculty Representative**
- 2020 **Volunteer for ALC14** <https://sites.google.com/view/alc14>
- 2019 **Volunteer for ALC13** <https://sites.google.com/view/arizonalinguisticscircle13>
- 2019 **Volunteer for SAIL** <https://sail.sites.arizona.edu/>

Industry Experience

- Summer 2022 **Research Intern**, *Educational Testing Services, ETS AI Labs*, Integrating SHAP functionality into RSMT TOOL: AI Explainability.
I integrated SHAP functionality into RSMT TOOL (RSMT). RSMT is used by ETS to evaluate machine learning models and assess them for fairness. I added components to the library that allow automatic generation of an explainability report for models generated using ETS' internal sci-kit learn wrapper, SKLL.

Research Interests

- Computational Linguistics I am interested in situations where neural approaches to NLP struggle because of limited data, either for lack of data in general, or lack of resources in procuring data. Adjacent to this, I have an interest in neural machine translation and ways to make it accessible to under-served communities. My other interests in this area are in Information Extraction Systems and ways to capture complex dialog events.
- Syntax of Adjectives I am interested in the syntax and of adjectives cross-linguistically, especially with regards to their relationship with degree modifiers such as *much*.
- Evolution of Language I am interested in topics pertaining the evolution of language capability in humans. Specifically, I am interested in the phenomena of home-sign and emergent sign languages and how they can inform us on the conditions under which human language can arise.

Current Research Projects

- German Adjectives and Degree Modification **The Syntax and Semantics of adjectival degree modification**, *Dissertation Project*, I am working on the Syntax and Semantics of degree modification in German adjectives. What is of particular interest to me is the German modifier *viel* (compare English “much”) and its selectional properties. *Viel* seems to select for events over states in verbs, nominals, and adjectives, yet it also selects for comparatives. I believe that deriving a consistent syntactic and semantic analysis of this pattern can inform on the status of adjectives generally and contribute to the discussion on Bresnan 1973’s hypothesis on English *much*.
- Language Evolution **Emergent Sign Language: CENA**, *Collaboration with: Anderson Almeida da Silva (Universidade Federal do Delta do Parnaíba), Shigeru Miyagawa (MIT and University of São Paulo), and Vitor Nóbrega (University of Hamburg)*, CENA is an emergent sign language in Piauí, Brasil, that arose out of a homesign system some 70 years ago (Almeida da Silva & Nevins 2020). We are working on a joint research project to show that (i) humans do not need an external model of language, but can instead devise one of their own (an argument already made by Goldin-Meadow and colleagues in their work on homesign, see for example Brentari & Goldin-Meadow 2017), and (ii) that a homesign system can quickly progress into a full-fledged sign language if there is a community that uses it. While similar arguments have been made on the case of Nicaraguan Sign Language, we argue that CENA is different because it was not subject to any outside influences during its genesis due to the fact that it arose in a remote village with no access to other sign languages or sign language educators.
- Event Extraction **Informative Event Extraction for Dynamic Domains**, *Collaboration with: Yuwei Wang, Chen Chen (University of Arizona)*, The team I lead within the ToMCAT project maintains a rule based event extraction (EE) system. The domain we work in consists of spontaneous speech within a game-like context. The game setting itself is subject to change with very little notice. This leads to a very dynamic domain that does not lend itself to deep learning approaches. We are looking at ways to utilize our rule-based system to fine-tune a deep learning system. We are also working on co-reference resolution in natural dialogues.

Programming

Languages Python (confident), Scala (beginner), C++ (beginner)

Libraries OpenNMT-py, pytorch, beautiful soup, pony ORM, matplotlib, sklearn, shap, pandas, numpy, transformers

Adjacent Skills

Github Version control with git and Github.

SQLite Experience with SQLite databases through pony-ORM (python).

LaTeX Usage as a text editor, to compile slides, present data, and write templates

Languages

○ German, Proficient, Native

○ French, Basic

○ English, Proficient

○ Spanish, Basic