Mag. Remo Nitschke M.S.

Resume

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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 suppport

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.), A^0 – *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*, Premiére 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 participal 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 RSMTOOL: AI Explainability.

I integrated SHAP functionality into RSMTOOL (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
- English, Proficient
- French, Basic
- Spanish, Basic