

# Joshua Tanner

NLP Engineer

## Experience

### NLP Lead

#### Development Team

### Mantra Inc

2021/12 - Current

- Lead NLP engineering (5 engineers) across multiple projects:
  - Apply LLMs to manga translation, allowing terminology and story aware translation of >30k manga chapters
  - Explore training methods to improve LLM translation, pruning noisy OCR data for monolingual and bilingual fine-tuning
  - Build LLM pipeline for novel translation with LangChain to partially automate translation of 200 novels
  - Integrate Mantra's translation technology into multiple multi-billion dollar companies
  - Train multilingual and terminology-aware translation models with Fairseq, improving BLEU on multiple languages by >10
  - Work with professional translators to improve evaluation
- Develop and maintain application backend using Django and AWS
- Rewrite flagship mobile application from scratch in Flutter

### NLP Consultant

#### Freelance

### Multiple Companies

2020/1 - Current

- Led development of an interactive translation system allowing users to translate by repeatedly selecting from model-suggested words
- Implemented optimized character-level transformer architecture in PyTorch and pretrained it with masked language modeling, outperforming state-of-the-art in Japanese topic classification [\[link\]](#)
- Rewrote scientific information extraction pipeline using spaCy, increasing micro f1 by more than 20 points

### Research Intern

#### Institute of Industrial Science

### University of Tokyo

2020/12 - 2021/12

- Research into to retrieval-augmented and explainable grammatical error correction

### Software Engineer

#### New Product Development & Global Growth

### eBay

2016/11 - 2019/9

- Lead development of, tested, and maintained sole ownership of Scala distributed scheduler that powered proactive messaging for eBay's chat bot and Chinese iPhone app
- Research into bootstrapping NLP process to extract informative noun/adjective pairs from product reviews was accepted for presentation at eBay's internal research conference (25% acceptance rate)
- Developed Ruby on Rails web service that allowed non-technical staff to write and schedule messages from chat bot to users

### Software Engineer

#### Global Shipping Program

### eBay

2015/9 - 2016/11

- Architected the pipeline used to import shipping charge data from shipping partners, increasing the accuracy of international shipping prices on eBay's search results page by up to 40%
- Developed new features in Java/Spring services at scale (several million requests per hour), wrote tests using JUnit and Mockito
- Drove an effort to automate excessive manual operations work, saving team tens of hours of work per week

### Intern

#### Global Data Infrastructure

### eBay

2013/6 - 2014/9

- Owned and expanded functionality of Ruby on Rails application automating Hadoop permissions changes and other operational tasks

## Research

**Project MOSLA: Recording Every Moment of Second Language Acquisition**

M. Hagiwara, J Tanner

LREC-COLING 2024 (forthcoming) [\[link\]](#)

**Utilizing Longer Context than Speech Bubbles in Automated Manga Translation**

H Kaino, S Sugihara, T Kajiwar, T Ninomiya, J Tanner and S Ishiwatari

LREC-COLING 2024 (forthcoming)

**MWE as WSD: Solving Multiword Expression Identification with Word Sense Disambiguation**

J Tanner, J Hoffman

EMNLP Findings+Poster 2023 [\[link\]](#)

**GrammarTagger: A Multilingual, Minimally-Supervised Grammar Profiler for Language Education**

M Hagiwara, J Tanner, K Sakaguchi

arxiv preprint 2021 [\[link\]](#)

## Education

**M.S. Comp. Linguistics**

University of Washington / 2021

**B.S. Computer Science**

The Evergreen State College / 2015

**Exchange Program**

University of Hyogo / 2015

## Projects

**MWE Dictionary**

2023

Multiword-expression aware dictionary for language learners using models trained with Pytorch Lightning and a gRPC backend

**Affiliate Link Generator**

eBay Innovation Expo / 2016

Hackathon project converting relevant n-grams into affiliate links featured in internal expo (14% acceptance rate)

**Parasite**

Personal Project / 2009

Lead development of StarCraft 2 mod reaching two million plays per week

## Languages

English Native

Japanese Fluent (JLPT N1)