

VILÉM ZOUHAR

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EDUCATION



ETH Zürich

2022-present

PhD in Computer Science in **LRE lab**

Advisors: Mrinmaya Sachan, Menna El-Assady

Thesis: Prudent NLG Evaluation



UNIVERSITÄT
DES
SAARLANDES



university of
 groningen

Saarland University + Groningen University

2020 - 2022

MSc. in Language Science and Technology (double)

Advisors: Dietrich Klakow, Gosse Bouma

Thesis **Shrinking Knowledge Base Size: Dimension Reduction, Splitting & Filtering**



Charles University in Prague

2017 - 2020

BSc. in Computer Science (computational linguistics minor)

Advisor: Ondřej Bojar

Thesis **Enabling Outbound Machine Translation**



RESEARCH INTERESTS (inter alia)

- ▲ Non-mainstream MT and other NLP *How to reliably predict the quality of MT (and other NLP) output?*
- ▲ Efficient NLP evaluation *Which examples to choose to efficiently compare a set of models?*
- ▲ NLP-oriented human-computer interaction *How to convey model's confidence to the users to increase trust?*



TEACHING

- ▲ Student projects supervision 2023-present
- ▲ Interactive Machine Learning tutor 2025
- ▲ Large Language Models tutor 2023, 2024, 2025
- ▲ Neural Networks Implementation and Applications **tutoring & materials** 2021
- ▲ Statistical Natural Language Processing **tutoring & materials** 2021



WORK EXPERIENCE

- ▲ Microsoft Translate, remote (applied scientist intern, model evaluation) 2024
- ▲ **Amazon Machine Translation**, New York (applied scientist intern, quality estimation) 2023
- ▲ **Spoken Language Systems** group (student research assistant) 2021
 - ▲ Saarland University, Germany
 - ▲ Information retrieval and language modelling efficiency
- ▲ **Institute of Formal and Applied Linguistics** (student research assistant) 2019-2022
 - ▲ Charles University, Czech Republic
 - ▲ MT- and psycholinguistics-related projects (**Bergamot**/in-browser MT, **ELITR**)
- ▲ Previo (software dev intern) 2018
- ▲ BIM Project (software dev intern) 2017



AWARDS AND SCHOLARSHIPS

- ▲ Two EAMT student grants for research on compute-efficient evaluation, and LLM brittleness 2025, 2025
- ▲ Language & Communication Technologies full MSc Erasmus Mundus **scholarship** 2020-2022
- ▲ Student faculty grant for **learning materials** for Machine Learning Exercises in R 2018



AI-Assisted Human Evaluation of Machine Translation (NAACL 2025)

Vilém Zouhar,¹ Tom Kocmi,² Mrinmaya Sachan

Early-Exit and Instant Confidence Translation Quality Estimation (In review 2025)

Vilém Zouhar, Maike Züfle, Beni Egressy, Julius Cheng, Jan Niehues

Error Span Annotation: A Balanced Approach for Human Evaluation of Machine Translation (WMT 2024)

Tom Kocmi,¹ **Vilém Zouhar**,² Eleftherios Avramidis, Roman Grundkiewicz, Marzena Karpinska, Maja Popović, Mrinmaya Sachan, Mariya Shmatova

Quality and Quantity of Machine Translation References for Automated Metrics (HumEval 2024)

Vilém Zouhar, Ondřej Bojar

Navigating the Metrics Maze: Reconciling Score Magnitudes and Accuracies (ACL 2024)

Tom Kocmi, **Vilém Zouhar**, Christian Federmann, Matt Post

Distributional Properties of Subword Regularization (EMNLP 2024)

Marco Cognetta, **Vilém Zouhar**, Naoaki Okazaki

A Diachronic Perspective on User Trust in AI under Uncertainty (EMNLP 2023)

Shehzaad Dhuliawala,¹ **Vilém Zouhar**,² Mennatallah El-Assady, Mrinmaya Sachan

Tokenization and the Noiseless Channel (ACL 2023)

Vilém Zouhar, Clara Meister, Juan Luis Gastaldi, Li Du, Mrinmaya Sachan, Ryan Cotterell

Re-visiting Automated Topic Model Evaluation with Large Language Models (EMNLP 2023)

Dominik Stammach, **Vilém Zouhar**, Alexander Hoyle, Mrinmaya Sachan, Elliott Ash

Neural Machine Translation Quality and Post-Editing Performance (EMNLP 2021)

Vilém Zouhar, Ondřej Bojar, Martin Popel, Aleš Tamchyna

WMT20 Document-Level Markable Error Exploration (WMT 2020)

Vilém Zouhar, Tereza Vojtěchová, Ondřej Bojar

How to Select Datapoints for Efficient Human Evaluation of NLG Models? (In review 2025)

Vilém Zouhar, Peng Cui, Mrinmaya Sachan

Pitfalls and Outlooks in Using COMET (WMT 2024)

Vilém Zouhar,¹ Pinzhen Chen,² Tsz Kin Lam, Nikita Moghe, Barry Haddow

Fine-Tuned Machine Translation Metrics Struggle in Unseen Domains (ACL 2024)

Vilém Zouhar, Shuoyang Ding, Anna Currey, Tatyana Badeka, Jenyuan Wang, Brian Thompson

WMT24 General Machine Translation Shared Task: The LLM Era is Here but MT is Not Solved Yet (WMT 2024)

Tom Kocmi, Eleftherios Avramidis, Rachel Bawden, Ondřej Bojar, Anton Dvorkovich, Christian Federmann, Mark Fishel, Markus Freitag, Thamme Gowda, Roman Grundkiewicz, Barry Haddow, Marzena Karpinska, Philipp Koehn, Benjamin Marie, Christof Monz, Kenton Murray, Masaaki Nagata, Martin Popel, Maja Popović, Mariya Shmatova, Steinþór Steingrímsson, **Vilém Zouhar**

RELIC: Investigating Large Language Model Responses using Self-Consistency (CHI 2024)

Furui Cheng, **Vilém Zouhar**, Simran Arora, Mrinmaya Sachan, Hendrik Strobelt, Mennatallah El-Assady

Evaluating Optimal Reference Translations (JNLE 2024)

Vilém Zouhar, Věra Kloudová, Martin Popel, Ondřej Bojar

WMT 2023 Shared Task on Machine Translation with Terminologies (EMNLP 2023)

Kirill Semenov, **Vilém Zouhar**, Tom Kocmi, Dongdong Zhang, Wangchunshu Zhou, Yuchen Eleanor Jiang

A Formal Perspective on Byte-Pair Encoding (ACL 2023)

Vilém Zouhar, Clara Meister, Juan Luis Gastaldi, Li Du, Tim Vieira, Mrinmaya Sachan, Ryan Cotterell

Poor Man's Quality Estimation: Predicting Ref.-Based MT Metrics Without Reference (EACL 2023)

Vilém Zouhar, Shehzaad Dhuliawala, Wangchunshu Zhou, Nico Daheim, Tom Kocmi, Yuchen Eleanor Jiang, Mrinmaya Sachan

Providing Backtranslation Improves Users Confidence in MT, Not Quality (NAACL 2021)

V. Zouhar, M. Novák, M. Žilínek, O. Bojar, M. Obregón, R. L. Hill, F. Blain, M. Fomicheva, L. Specia, L. Yankovskaya

QE4PE: Word-level Quality Estimation for Human Post-Editing (In review 2025)

A Bayesian Optimization Approach to Machine Translation Reranking (NAACL 2025)

Interactive Analysis of LLMs using Meaningful Counterfactuals (In review 2025)

PWESuite: Phonetic Word Embeddings and Tasks They Facilitate (LREC-COLING 2024)

Two Counterexamples to Tokenization and the Noiseless Channel (LREC-COLING 2024)

Knowledge Base Index Compression via Dimensionality and Precision Reduction (SpaNLP 2022)

Sampling and Filtering of Neural Machine Translation Distillation Data (NAACL SRW 2021)

How to Engage Your Readers? Generating Guiding Questions to Promote Active Reading (ACL 2024)

Scaling the Authoring of AutoTutors with Large Language Models (Learning@Scale 2024)

Enhancing Textbooks with Visuals from the Web for Improved Learning (EMNLP 2023)

Ryanize bib (2023)

ÚFAL Bilingual scientific abstracts corpus (2022)

Artefact Retrieval: Overview of NLP Models with Knowledge Base Access (AKBC CSKB 2021)

Leveraging Neural Machine Translation for Word Alignment (PBML 116)

Sentence Ambiguity, Grammaticality and Complexity Probes (BlackboxNLP 2022)

Slow Align Displayer (2020)

INVITED TALKS

- ▲ Prudent MT Evaluation at Cardiff NLP Seminars (2025), Google Translate (2024)
- ▲ Token(s) of Appreciation for BPE at MT Marathon (2024)
- ▲ ESA and ESAAI at Microsoft Translate (2024)
- ▲ How we solved tokenization but got it wrong at ZurichNLP Meetup #9 (2024)
- ▲ Quality and Quantity of Machine Translation References for Automated Metrics at IST/Unbabel seminar (2024)
- ▲ Poor Man's Quality Estimation at IST/Unbabel seminar (2023)

SERVICE

- ▲ Conference on Machine Translation WMT (co-organizer) 2024
- ▲ **WMT Terminology** Shared Task (organizer) 2023
- ▲ Evaluation committee member for granting university accreditations in Czechia (5 times) 2020-present
- ▲ **CSRR**: Workshop on Commonsense Representation and Reasoning (organizer) ACL 2022
- ▲ Reviewer: {NAACL}2025 {LREC-COLING, EACL★, ARR, Repl4NLP, EMNLP, WMT}2024 {ARR, WMT, EMNLP, ACL-IJCNLP, ACL}2023 {SVRHM, CoNLL, ACL-IJCNLP}2022

TECHNICAL KNOWLEDGE

[GitHub](#)

- ▲ **Programming**: Python, JS/TS, Rust
- ▲ **Toolkits**: PyTorch, Scikit, Numpy, HF, Fairseq, Marian NMT
- ▲ **Misc**: Linux (long-term user, cluster), passionate (still WIP) about visualization, writing and typesetting (Typst, LaTeX)

LANGUAGES


- ▲ Czech: C2
- ▲ English: C2
- ▲ German: B2 + linguistic curiosity

STUDENTS

Pleasure to (co-)supervise student projects/theses

- ▲ Yijie Tong, Haokun He (Self Quality Estimation for Machine Translation and NLP) UZH 2024
- ▲ Abhinav Kumar (Data Augmentation for Text Complexity Prediction) UZH 2024
- ▲ Vincent Dörig (IRead: AI-Enhanced Textbook Reading) ETH 2024
- ▲ David Gu (Manifestations of Image Complexity) ETH 2023

EXTRA-CURRICULAR

- ▲ Academic senate at Charles University Faculty of Mathematics and Physics 2018-2020
- ▲ Several **games** programmed and presented in limited time, mostly Ludum Dare 2015-present
- ▲ Organization of **Kasiopea**, an annual coding competition for talented high school students 2017-2019
- ▲ Amateur electric guitar  2021-present