Nils **Grünefeld**

PhD Fellow · Uncertainty Quantification in Machine Learning

NLPnorth, IT University of Copenhagen · Copenhagen, Denmark

(+45) 50 12 12 82 | nilgr@itu.dk | n.grnfld.me | ngruenefeld | ngruenefeld | Nils Grünefeld

Education

IT University of Copenhagen — *Copenhagen, Denmark*

PhD in Data Science — *Oct. 2025 – Present*

- Thesis: *Efficient Gradient-Based Uncertainty Quantification using Language Perturbation*.
- Supervised by Christian Hardmeier and Jes Frellsen. NLPnorth group; affiliated with the Pioneer Centre for AI.
- Funded by a Danish Data Science Academy (DDSA) PhD Fellowship.

Ludwig Maximilian University of Munich — *Munich, Germany*

MSc in Computational Linguistics — *2023 – 2025*

- Thesis: *Estimating Uncertainty in Natural Language Processing*, supervised by Barbara Plank and Silvia Casola (MaiNLP).

Leibniz University Hannover — *Hannover, Germany*

MSc in Computer Science — *2022 – 2023*

- Transferred to the MSc in Computational Linguistics at LMU Munich after one semester.

Leibniz University Hannover — *Hannover, Germany*

BSc in Computer Science — *2014 – 2022*

- Thesis: *Explaining and Applying Graph Neural Networks on Text*, supervised by Avishek Anand and Thorben Funke.

Publications

* Equal contribution.

Peer-Reviewed

An Isotropic Approach to Efficient Uncertainty Quantification with Gradient Norms — *ProbML 2026 · Best Paper Award*

Nils Grünefeld, Jes Frellsen, Christian Hardmeier — *2026*

- Proceedings of the 1st Symposium on Probabilistic Machine Learning, PMLR 327:86–118. Oral presentation; also presented as a poster at the FoGen Workshop, ICML 2026.

Under Review

Separating Ambiguity from Ignorance: Explaining Data Influence by Uncertainty Reduction — *Under review · AISTATS 2027*

Johannes Gabriel Sindlinger*, **Nils Grünefeld***, Anna Rogers, Jes Frellsen, Christian Hardmeier — *2026*

Tracing Uncertainty in Language Model "Reasoning" — *Under review · ICLR 2027*

Nils Grünefeld*, Bertram Højer*, Philipp Mondorf, Barbara Plank, Anna Rogers, Christian Hardmeier, Stefan Heinrich, Jes Frellsen — *2026*

- arXiv:2605.07776. Presented as a poster at the FoGen Workshop, ICML 2026.

In Preparation

How do LLMs learn and express different perspectives?

Nils Grünefeld, Mattes Ruckdeschel, Silvia Casola, Marco Stranisci, Anna Rogers, Barbara Plank, Jes Frellsen, Christian Hardmeier — *2026*

Honors & Awards

2026 **Best Paper Award**, ProbML 2026 — *Seoul, South Korea*

2025 **PhD Fellowship**, Danish Data Science Academy (DDSA) — *Denmark*

Talks

Separating Ambiguity from Ignorance: Explaining Data Influence by Uncertainty Reduction — *Vienna, Austria*
Invited Talk · Mathematical Data Science group, University of Vienna — *Nov. 2026*

An Isotropic Approach to Efficient Uncertainty Quantification with Gradient Norms — *Copenhagen, Denmark*
Invited Talk · Andrés Masegosa's group, Aalborg University Copenhagen — *Sep. 2026*

An Isotropic Approach to Efficient Uncertainty Quantification with Gradient Norms — *Seoul, South Korea*
Oral · ProbML 2026 — *Jul. 2026*

Experience

the peak lab. — *Oldenburg, Germany*
Data Scientist — *2022 – 2025*

- Analyzed complex data sets using statistical methods and machine learning to extract insights, inform decisions, and develop data-driven products and solutions.
- Designed and implemented a standardized process for data science projects.
- Implemented a company-wide focus on explainability in machine learning solutions.
- Designed and implemented machine learning solutions for major company clients, including text classification for business product categorization and time-series-based predictive maintenance modeling.

Teaching & Supervision

Reasoning in Large Language Models (MSc seminar) — *LMU Munich*
Guest Lecture: Uncertainty in LLM Reasoning — *Autumn 2026*

Advanced Natural Language Processing (MSc course) — *IT University of Copenhagen*
Lecturer — *Autumn 2026*

Uncertainty Communication in LLMs: Can Fine-tuning Improve Calibration in Question Answering? (BSc thesis) — *IT University of Copenhagen*
Co-Supervisor (with Christian Hardmeier) — *Spring 2026*

Programming I & II (BSc courses) — *Leibniz University Hannover*
Teaching Assistant — *2016 – 2021*

Academic Service

Reviewing Computational Linguistics (MIT Press) · Transactions on Machine Learning Research (TMLR)

Summer & Winter Schools

2026 **Machine Learning Summer School (MLSS)** — *New York City, USA*
2026 **Circle U, NLPL & OpenEuroLLM Winter School on Multilinguality in LLMs** — *Skeikampen, Norway*
2024 **Athens Natural Language Processing Summer School** — *Athens, Greece*

Skills

Programming Python, Java, C, R, Bash, Git, LaTeX
Frameworks PyTorch, Hugging Face Transformers, Pyro, (Py)Stan, scikit-learn, NumPy, SciPy, pandas, Matplotlib
Languages German (native), English (fluent), French (basic)