

# Kumar Shridhar

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## EDUCATION

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|--------------------|--|
| AUG '21 - DEC '24  | <i>PhD in Computer Science, ETH Zürich</i><br><b>Specialization:</b> Machine Learning, NLP, Generative models<br><b>Supervisor:</b> <a href="#">Prof. Mrinmaya Sachan</a>  |
| APR '16 - JUNE '20 | <i>Masters in Computer Science, University of Kaiserslautern</i><br><b>Specialization:</b> Machine Learning, <b>Minor:</b> Psychology<br><b>Masters Thesis:</b> <a href="#">Bayesian Convolutional Neural Network with Variational Inference</a> |

## SELECTED PUBLICATIONS

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|--------------------------|---|
| NEURIPS '22              | <a href="#">Learning to Drop Out: An Adversarial Approach to Training Sequence VAEs</a><br>Djordje Miladinovic*, <b>Kumar Shridhar*</b> , Kushal Jain, Max B. Paulus, Joachim M. Buhmann & Carl Allen   |
| UNDER REVIEW             | <b>Using knowledge from data as constraints in neural NLP models:</b> We propose a novel optimisation scheme to leverage knowledge from the data samples to put explicit constraints on the output space of a model. ( <b>Kumar Shridhar &amp; others.</b> )          |
| UNDER REVIEW             | <b>Scaling OntoNotes to Longer Coreference Chains:</b> We merge the annotations from documents that were split into multiple parts in the Ontonotes data and discuss scaling of coref models to larger documents. ( <b>Kumar Shridhar &amp; others.</b> )             |
| UNDER REVIEW             | <b>Teaching NLP models mathematical concepts:</b> We propose ways to incorporate mathematical reasoning abilities in large language models. ( <b>Kumar Shridhar &amp; others.</b> )   |
| ACL '21 FINDINGS         | <a href="#">Scaling Within Document Coreference to Long Texts</a><br>Raghuveer Thirukovalluru, Nicholas Monath, <b>Kumar Shridhar</b> , Manzil Zaheer, Mrinmaya Sachan and Andrew McCallum (2021)   |
| SUSTAINLP<br>@ EMNLP '20 | <a href="#">End to End Binarized Neural Networks for Text Classification</a><br><b>Kumar Shridhar*</b> , Harshil Jain*, Akshat Agarwal*, Denis Kleyko (2020)  |
| PML4DC<br>@ ICLR '20     | <a href="#">HyperEmbed: Trade-off Between Resources and Performance in NLP Tasks with Hyperdimensional Computing-based embedding of <math>n</math>-gram statistics</a><br>Pedro Alonso*, <b>Kumar Shridhar*</b> , Denis Kleyko*, Evgeny Osipov, Marcus Liwicki (2019) |

## WORK EXPERIENCE

MAY '21 - AUG '21	Applied Research Intern at <b>Amazon Alexa AI</b> <ul style="list-style-type: none"><li>• Worked on a constrained optimization formulation for training a deep neural network with a set of hard constraints on output labels.</li></ul>
JAN '20 - MAY '20	Student Researcher at <b>Deutsches Forschungszentrum für Künstliche Intelligenz (DFKI)</b> <ul style="list-style-type: none"><li>• Proposed a Probabilistic Activation Function for Deep Neural Networks that acts as a stochastic regularizer to prevent overfitting and improves the generalization capabilities of the network. <a href="#">ArXiv</a></li></ul>
OCT '18- DEC '19	Lead Researcher at <b>BotSupply, Denmark</b> <ul style="list-style-type: none"><li>• Lead the Natural Language Processing team at BotSupply and designed the bot NLP platform that powers all the customers' chatbots at BotSupply. ( over 1 million interactions).</li></ul>
JAN '18- SEP '18	Research Assistant at <b>Insiders Technologies GmbH, Germany</b> <ul style="list-style-type: none"><li>• Worked with Ovation Machine Learning team and designed Intent Classification and Entity Extraction algorithms that can perform well with scarce datasets.</li></ul>

## TECHNICAL SKILLS

PROGRAMMING	Python (projects over 1k + on GitHub), HTML, CSS
TECHNOLOGIES	PyTorch, Tensorflow, Amazon AWS, Google Cloud Platform (GCP), SciPy, NumPy, scikit-learn, FastText, NLTK, RASA, SpaCy, UNIX, Flask, FastAPI, Docker, Git, $\text{\LaTeX}$ , Jupyter Notebook
OPERATING SYSTEM	Linux (Ubuntu), Mac

## AWARDS

- Google Cloud research credits worth 5k USD.
- Kaggle Top 1% : Rank 5 in Plant Seedling Identification challenge.
- Contributed to the BIG-bench task to understand the capabilities of large LMs.
- Medium Top Writer – Artificial Intelligence (Over 300K reads)
- Member of IBM Award Winner 2017 Team at BotSupply

## LANGUAGES

ENGLISH:	Expert (TOEFL '16)
HINDI:	Native Language
GERMAN:	Intermediate (B1 '17)

## VOLUNTEER EXPERIENCE

SEP '19 - PRESENT	Reviewer : ICLR '20, '21, '22, NeurIPS '20, '22, EMNLP '22, AAAI '21
JAN '20 - JUNE '20	Reviewer : <a href="#">Advanced Natural Language Processing with TensorFlow</a>
MAY '17 - APR '18	Host: Chatbot Meetups Copenhagen, Denmark
JAN '15 - JAN '16	Humanitarian Volunteer - <i>Ashaavan Educational and Welfare Society</i>