Uma **Gunturi**

MS in Computer Science, Virginia Tech

🌐 umagunturi.github.io/   @ umasgunturi@gmail.com   ⌨ github.com/UmaGunturi   🎓 Google Scholar
📍 Virginia Tech Department of Computer Science, 2200 Kraft Dr SW, Blacksburg, VA 24060

Education

Present **Aug 2021**	**Virginia Tech | Department of Computer Science** **Blacksburg, VA** M.S in Computer Science, *GPA: 4.0/4.0* *Thesis: Towards Social Technologies for Understanding Online Racial Microaggressions* *Committee: Dr. Eugenia H. Rho (Chair), Dr. Ismini Lourentzou, Dr. Edward Fox*
May 2021 **Aug 2017**	**Bennett University** **Greater Noida, India** B.Tech., Computer Science and Engineering w/ Political Science (Minor), *CGPA: 9.02/10.00*

Experience

Aug 2022 **May 2022**	**IBM Research | Foundations of AI – Knowledge Reasoning Team** [🌐] **Yorktown Heights, NY** *AI Intern | Advisors: Dr. Tengfei Ma (Primary), Dr. Achille Fokoue, Dr. Alexander Gray* Project: Building Neuro-symbolic Models for Interpretable Time Series Classification using Signal Temporal Logic (STL) Descriptions
Present **Aug 2021**	**Virginia Tech | SAIL Lab | Center for Human Computer Interaction (CHCI)** **Blacksburg, VA** *Graduate Student Researcher | Advisor: Dr. Eugenia H. Rho* Projects: Intertextuality in linguistic interactions: (1) Understanding Acts and Recalls of Online Racial Microaggressions on Social Media *(RAMA)* (2) Counter Response Online Suggestion System: Leveraging Linguistic Artificial Intelligence to Help Users Counter Gray Areas of Online Toxicity *(CROSS)* (3) A Deep-Learning Approach to Investigating Intergroup Biases Across Gists in Health Mandate Resistance *(HNDS-R)*
Dec 2021 **Apr 2020**	**Indraprastha Institute of Information Technology (IIIT), Delhi | MIDAS Lab** [🌐] **New Delhi, India** *Research Intern (Bachelor Thesis) | Advisors: Dr. Debanjan Mahata (Primary@Bloomberg AI), Dr. Rajiv Ratn Shah* Projects: Abstractive Summarization of Open-Domain Code-Switched Conversations, Understanding Behaviors of Users with Suicidal Ideation in COVID-19 Mental Health Support Communities
Aug 2019 **May 2019**	**Georgia Tech | Visual Intelligence Lab** [🌐] **Atlanta, GA** *Summer Research Intern | Advisors: Dr. Devi Parikh (Primary), Dr. Dhruv Batra* Project: Analyzing the behavior of state-of-the-art Visual Question Answering (VQA) Models to meaningfully compare the strengths and weaknesses of different models
Aug 2018 **May 2018**	**Georgia Tech | Chu Data Lab** [🌐] **Atlanta, GA** *Visiting Research Student | Advisors: Dr. Xu Chu* Project: Composing and Debugging Machine Learning Model Workflow using Local Interpretable Model-Agnostic Explanations *(CodeML)*

Publications

S=In Submission, U=Under Review, C=Conference

[S.1] **ToxVis: Enabling Interpretability of Implicit vs. Explicit Toxicity Detection Models with Interactive Visualization** [PDF], [DEMO]
Uma Gunturi*, Xiaohan Ding*, Eugenia H. Rho
Accepted to The CHI'23 Workshop on Combating Toxicity, Harassment, and Abuse in Online Social Spaces   **[CHI'23]**

[U.2] **Linguistically Differentiating Acts and Recalls of Racial Microaggressions on Social Media** [Poster], [DEMO]
Uma Gunturi, Anisha Kumar, Xiaohan Ding, Eugenia H. Rho
Under Review at ACM Conference On Computer-Supported Cooperative Work And Social Computing   **[CSCW'23]**

[U.1] **Fill in the ___ in Your Language: Generating Low Resource Language Data from Code Switching**
Uma Gunturi*, Isabelle Lee*, Laiba Mehnaz, Zachary Jaggers, Teruko Mitamura
Under Review at Annual Conference of the Association for Computational Linguistics   **[ACL'23]**

[C.1] **GupShup: Summarizing Open-Domain Code-Switched Conversations** [PDF], [🔗]
Laiba Mehnaz*, Debanjan Mahata*, Uma Gunturi*, Amardeep Kumar*, Rakesh Gosangi, Riya Jain, Gauri Gupta, Isabelle Lee, Anish Acharya, Rajiv Ratn Shah (* = Equal Contribution)
Accepted at The 2021 Conference on Empirical Methods in Natural Language Processing   **[EMNLP'21]**

Select Research Projects

Intertextuality in linguistic interactions
Advisors: Dr. Eugenia Rho Aug'21 - Present

> Led foundational mixed-methods HCI research to characterize the language underlying acts and recalls of racial microaggressions in the context of racism in the U.S. providing broader implications to the current challenges in content moderation systems on social media. [**Under Review@CSCW 23**]

> Visualizing semantic opportunities and limitations of transformer-generated counter responses against implicit online aggressions through an interactive UI playground for users to learn and craft responses through machine-generated texts. [🌐] [**CHI'23 Workshop**]

> Examined language surrounding government-mandated COVID-19 health practices on social media to better understand people's risk perceptions and communicative patterns.

Abstractive Summarization of Open-Domain Code-Switched Conversations
Advisors: Dr. Debanjan Mahata, Dr. Rajiv Ratn Shah Apr'20 - Dec'21

> Introduced the task of abstractive summarization for Hindi-English (Hi-En) code-switched conversations leading to developing the first code-switched conversation summarization dataset *GupShup*. [🌐] [**EMNLP'21**]

> Experimented with state-of-the-art abstractive summarization models and conducted an extensive qualitative analysis of the results to provide insight into some of the model shortcomings.

Generating Low Resource Langauge Data from Code Switching
Advisor: Dr. Teruko Mitamura (@LTI-CMU), Dr. Zachary Jaggers (@Amazon Science) Sept'22 - Present

> Proposed a novel, low-cost data generation framework to generate Low Resource Languages from code-switched (CS) corpora. [**Under Review @ACL'23**]

> Experimented with English-Telugu and English-Hindi to generate datasets for machine translation, sentiment analysis, and commonsense reasoning tasks.

> This work is done in collaboration with the Language Technologies Institute at Carnegie Mellon University and is partially funded by the Air Force Research Laboratory under agreement number FA8750-19-2-0200.

Neuro-symbolic Models for Interpretable Time Series Classification
Advisors: Dr. Tengfei Ma, Dr. Alexander Gray, Dr. Achille Fokoue May'22 - Aug'22

> Developed a novel Neuro-Symbolic LSTM (NS-LSTM) that integrates Signal Temporal Logic (STL) descriptions and neural networks (NNs) to accomplish downstream tasks such as TSC using multi-view data representation leaving models human-readable and interpretable.

> We test NS-LSTM on real-world datasets obtained from the BETR DARPA project and other benchmark datasets from the UCR time-series repository, demonstrating that NSTSC achieves comparable performance compared to state-of-the-art models. [IBM US Patent App. *Under Review*]

Honours and Awards

Paul E. Torgersen Research Excellence Award, 2023 | Virginia Tech One of the four recipients in the Master's program

Teaching and Leadership Roles

SAIL NLP Reading Group, VT *Organizer* Aug'21 - Present

> Organize a weekly lab-wide Reading Group focused on research in the areas of Human Computer Interaction, Natural Language Processing. We read recent and classical papers as well as arrange for invited talks in related areas.

Software Design and Data Structures (CS 2114) *Graduate Teaching Assistant (Senior)* Aug'21 - May'23

> Responsibilities included evaluating labs, and helping students with the coursework and home/lab assignments.

Skills

> **Languages**: Java, Python, C++, HTML
> **Frameworks:** Pandas, NumPy, Gensim, Matplotlib, OpenCV, Keras, Tensorflow, PyTorch, TextBlob, NLTK, HuggingFace
> **Tools:** Git, GCP, Eclipse, Android Studio, Flask, FireBase, Visual Studio, Stanford Parser, Elasticsearch
> **Relevant Coursework:** Machine Learning, Information Retrieval, Data Analytics, Human AI Interaction, Natural Langauge Processing, Deep Learning, Discrete Mathematics, Probability and Statistics

Academic Service

Reviewer	CSCW '22, CHI'22
Volunteer	ACL'22