ANU SHRESTHA

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EDUCATION

Boise State University, Boise, Idaho, USA *August 2017 - May 2022*
MS and Ph.D. in Computer Science, GPA: 3.844
Advisor: Dr. Francesca Spezzano

Tribhuvan University, Nepal *Aug 2010 - Dec 2014*
Bachelor of Computer Science and Information Technology, GPA: 3.98

EXPERIENCES

Research Assistant at Boise state University *Aug 2017 - May 2022*

- **Deceptive Opinion Spam Detection using Neural Network**
  NLP and the neural network-based model to learn the representation of text from the Yelp restaurant data for detecting true and deceptive spam reviews.
- **Sockpuppet Detection in Wikipedia using Machine Learning Approach**
  Analysis of stylistic features, syntactic information, semantic features and behavioral features from editor's writing style to identify sockpuppets from normal editors.
- **Analysis of Misleading Political News**
  Analysis of factual and misleading political news according to different modalities including news content (headline, body, and associated image) and source bias.
- **Detecting depressed users in an online forum**
  Analysis of user behavior in the ReachOut.com online forum, a platform providing a supportive environment for young people to discuss their everyday issues, including depression and examination of the linguistic style of user posts in combination with network-based features modeling how users connect in the forum to detect depressed users.
- **Online Misinformation: From the Deceiver to the victim**
  Intensive study of the actors responsible for the misinformation spread and quantifying the impact on potential victims.
- **Quantifying the Effects of Fraudulent Reviews in Recommender Systems**
  Analysis on real life setting to quantify the effect of shilling attacks on recommender systems by focusing on both algorithm performance as well as the types of users who are most affected by these attacks.
- **Detecting Trustworthy Users in Opinion-based Systems**
  Detecting trustworthy reviewers as a multi-label classification problem, wherein users may be fraudulent, unreliable or uninformative, or trustworthy using embedding of temporal and behavioral features of reviewer provided by deep recurrent neural network.
- **Investigating How Readers Identify the Reliability of News**
  A comprehensive study to understand how various available granularity of information (meta-data) affect peoples ability to identify reliability of online information. Compared and contrasted with automatic detection mechanisms using the same news article meta-data and content information and found that humans are less accurate in identifying fake news when they have only the text of the article itself compared to when they rely on meta-data.
- **An Analysis of People's Reasoning for Sharing Real and Fake News**
  An analysis on data collected through a survey to better understand how people reason when they decide to share real news and fake news. Leveraged the demographic attributes of participants like gender and political orientation to investigate the pattern of news sharing behavior, the role of demographics in news sharing decisions, and why people share real and fake news. Furthermore, we used machine learning models to addressed the problem of predicting whether a person will share a given news item or not according to emotion, psychological, and demographics features.

Intern Data Scientist at The Climate Corporation *June 2020 - Aug 2020*
Mentor: Jenifer Holt

- **Machine Learning Model Benchmarking Initiative**
  Benchmarking the model involving violators that range from statistical models to the models that add complexity from machine learning models to neural networks for yield prediction leveraging the factors that are responsible for improving production.

Machine Learning Intern at Pacific Northwest National Laboratory *June 2019 - Aug 2019*
Mentor: Dr. Svitlana Volkova

- **Extensive Evaluation of NLP models**
  Intrinsic and extrinsic evaluation of state-of-the-art NER models for evaluating generalizability across datasets, error analysis as well as testing performance in downstream tasks. Optimized and implemented LSTM using Keras and BERT as word embedding for event prediction and implemented models for entity relationship extraction from text including models from AllenNLP, SyntaxNet Parser, and BERT.

Mentor in AI Developers Club *May 2018 - July 2018*

- Organized weekly session to teach and exchange ideas about data science, machine learning and deep learning with participants of Boise chapter of AI Saturdays, a global movement across the globe to make AI education at the quality and rigor of the universities accessible to everyone for free.

Software Engineer at Axon System pvt.ltd *Jan 2015 - Sept 2016*

- **Web service for mobile application and website development**
  Designed and Developed an integrated agricultural application that works as a bridge between the farmers and experts of the agricultural field for personalized and systematic farming.

Software Engineer Intern at Axon System pvt.ltd *Oct 2014 - Dec 2014*

- **Web development**
  Developed web service to examine and record childrens education status with the help of Village Development Committee for NGOs and INGOs.

TECHNICAL STRENGTHS

Programming Language	Python, Java, R, Java, Django, PHP, Ruby on Rails, C, C++, HTML, CSS, JavaScript
Database	MySQL, MSSQL, SQLite
Project Management	Git, Bitbucket, Jira, Trello, Slack
Data Analysis and Visualization Tools	Jupyter Notebook, Colab, RStudio, Advanced MS-Excel ggplot, Matplotlib, Seaborn, KNIME
Libraries	Keras, Fastai, PyTorch, scikit-learn, NLTK, networkx, pandas, spacy

AWARDS

Best Reproducibility Paper Award at ECIR conference, 2021
Grant to attend Grad Cohort for women, 2020
Graduate College Travel Grant to attend ASONAM Conference, 2019
Grant for poster presentation in Women in Machine Learning workshop, 2019
Associated Students of Boise State University (ASBSU) Scholar, 2018 and 2019
Full scholarship for MS and Ph.D. in Computer Science at Boise State University
Winner of Ruby on Rails workshop, Bajra Technologies, 2016
Girls topper award, St. Xaviers College, 2015
Merit-based scholarship for 3 years, St. Xaviers College, Tribhuvan University
Merit-based scholarship, Kathmandu University, 2008

PROFESSIONAL SERVICES

- **Organizing Committee of The 3rd Multidisciplinary International Symposium on Disinformation in Open Online Media 2022**
- **Presenter at NSF-sponsored workshop on Data Science and Cybersecurity 2021**
- **Sub-reviewer for conferences**
  - IEEE ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2021
  - IEEE ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM) 2020
  - IEEE International Conference on Big Data 2020
- **Reviewer for ACM Conference on Computer and Communications Security Posters and Demo 2020**
- **Reviewer for The 13th WiML Workshop co-located with NeurIPS 2018**

PUBLICATIONS

1. **Anu Shrestha**, Francesca Spezzano, Maria Soledad Pera, Who is Really Affected by Fraudulent Reviews? An analysis of shilling attacks on recommender systems in real-world scenarios. Proceedings of the Late-Breaking Results track part of the Twelfth ACM Conference on Recommender Systems (RecSys'18), Vancouver, Canada, October 2-7 October 2018.
2. **Anu Shrestha**, Francesca Spezzano, Quantifying the Effects of Fraudulent Reviews in Recommender Systems. In Proceedings of the 13th Women in Machine Learning (WiML) Workshop @ NeurIPS 2018, Montreal, Canada, December 3, 2018.
3. Harish Arelli, Francesca Spezzano, **Anu Shrestha**. Editing Behavior Analysis for Predicting Active and Inactive Users in Wikipedia. Influence and Behavior Analysis in Social Networks and Social Media 2019: 127-147, Springer, 2019.
4. Francesca Spezzano, **Anu Shrestha**. Online Misinformation: From the Deceiver to the Victim. Poster presentation at the International Workshop on Misinformation, Computational Fact-Checking and Credible Web, co-located with The Web Conference 2019, San Francisco, CA, May 14, 2019.
5. **Anu Shrestha**, Francesca Spezzano. Detecting Depressed Users in Online Forums. The International Symposium on Network Enabled Health Informatics, Biomedicine, and Bioinformatics @ ASONAM 2019, Vancouver, Canada, August 26-30, 2019.
6. **Anu Shrestha**, Francesca Spezzano. Online Misinformation: From the Deceiver to the Victim. The International Symposium on Foundations of Open Source Intelligence and Security Informatics @ ASONAM 2019, Vancouver, Canada, August 26-30, 2019.
7. Edoardo Serra, **Anu Shrestha**, Francesca Spezzano and Anna Squicciarini. DeepTrust: An Automatic Framework to Detect Trustworthy Users in Opinion-based Systems. The 10th ACM Conference on Data and Application Security and Privacy, New Orleans, LA, USA, March 16 - 18, 2020.
8. **Anu Shrestha**, Edoardo Serra, and Francesca Spezzano. Multi-modal social and psycho-linguistic embedding via recurrent neural networks to identify depressed users in online forums. NetMAHIB 9.1 (2020): 22.

9. **Anu Shrestha**, Francesca Spezzano and Indhumathi Gurunathan. Multi-modal Analysis of Misleading Political News. Multidisciplinary International Symposium on Disinformation in Open Online Media, Netherlands, October 26-27, 2020.

10. **Anu Shrestha**, Francesca Spezzano, Abishai Joy. Detecting Fake News Spreaders in Social Networks via Linguistic and Personality Features. In Linda Cappellato, Nicola Ferro, David E. Losada, and Henning Mller, editors, CLEF 2020 Labs and Workshops, Notebook Papers, September 2019. CEUR-WS.org, 22-25 September 2020.

11. Francesca Spezzano, **Anu Shrestha**, Jerry Allen Fails, Brain W Stone. That's Fake News! Reliability of News When Provided Title, Image, Source Bias & Full Article. In Proceedings of the ACM on Human-Computer Interaction, CSCW, 2021.

12. **Anu Shrestha**,Francesca Spezzano. Textual Characteristics of News Title and Body to Detect Fake News: A Reproducibility Study. European Conference on Information Retrieval, ECIR, 2021. **Received Best Paper Award.**