

# Kanishka Misra

*PhD Student in Natural Language Understanding*

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*PhD Student interested in problems related to Natural Language Understanding, Cognitive Science, Lexical and Contextual Semantics.*

## Education

- 2018–present **Ph.D.**, *Purdue University*, West Lafayette, IN.  
Natural Language Understanding  
**Related Research:** Contextual Semantics, Distributional Semantics, Cognitive Science, Word and Sentence Representations, Semantics of Humor  
Applied Knowledge Representation and Natural Language Understanding (*AKRaNLU*) lab  
Advisor: **Dr. Julia Taylor Rayz**
- 2014–2018 **B.S.**, *Purdue University*, West Lafayette, IN.  
Computer Information Technology  
Minor: Statistics

## Fellowships and Assistantships

- August 2018 – **PRF Ph.D. Research Fellowship**, *Purdue Research Foundation*.  
May 2019
  - One year Research fellowship awarded to work on predatory conversational environments.
  - Developing supervised and unsupervised methods to analyze language used by Contact and Non Contact offenders.
  - 3 publications in IEEE based conferences
    - 1 Poster at CERIAS Symposium (**Best Poster Award for Holistic Safety and Security Research**)

## Publications

- 2019 **Kanishka Misra**, Hemanth Devarapalli, Tatiana Ringenberg, Julia Taylor Rayz. Authorship Analysis of Online Predatory Conversations using Character Level Convolution Neural Networks. *IEEE-SMC 2019 (Forthcoming)*., Bari, Italy
- 2019 Tatiana Ringenberg, **Kanishka Misra**, Julia Taylor Rayz. Not So Cute but Fuzzy: Estimating Risk of Sexual Predation in Online Conversations. *IEEE-SMC 2019 (Forthcoming)*., Bari, Italy (**Joint first author**)
- 2019 **Kanishka Misra**, Hemanth Devarapalli, Julia Taylor Rayz. Measuring the Influence of L1 on Learner English Errors in Content Words within Word Embedding Models. *ICCM 2019*, Montréal, Canada
- 2019 Tatiana Ringenberg, **Kanishka Misra**, Kathryn C. Seigfried-Spellar, and Julia Taylor Rayz. Exploring Automatic Identification of Fantasy-Driven and Contact-Driven Sexual Solicitors. *2019 Third IEEE International Conference on Robotic Computing (IRC)*

- 2019 Kathryn C Seigfried-Spellar, Marcus K Rogers, Julia T Rayz, Shih-Feng Yang, **Kanishka Misra**, and Tatiana Ringenber. Chat analysis triage tool: Differentiating contact-driven vs. fantasy-driven child sex offenders. *Forensic science international*, 2019

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## Poster Presentations

- July 2019 **K. Misra**, H. Devarapalli, J.T. Rayz. L1 Influence on Content Word errors in Learner English Corpora: Insights from Distributed Representation of Words. *CogSci 2019*, Montréal, Canada
- April 2019 **K. Misra**, H. Devarapalli, J.T. Rayz. Authorship Attribution of Predators in Chat Conversations. *CERIAS Symposium 2019 (Best Poster Award, HSS)*
- April 2019 J. Phan, **K. Misra**, J.T. Rayz. Towards Trustworthy NLP Systems: Detecting Bias in Popular Models. *CERIAS Symposium 2019*
- April 2019 J. Phan, **K. Misra**, J.T. Rayz. Understanding Existing Bias in the Unsaid: Lessons Learnt from Word Embeddings. *PURC 2019*
- April 2018 **K.Misra**, J.T. Rayz. Predicting Future Interaction Between Predators and Decoys in an Online Conversational Environment. *PURC 2018 (Best Poster Award)*

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## Teaching

- Aug 2019 – **CNIT 272 - Database Fundamentals**, *Purdue University*, West Lafayette, IN.  
Present Department of Computer Information Technology, Supervised by Dr. Dawn Laux.  
◦ **Spring 2020**: 3/6 Lab Sections (71 students)  
◦ **Fall 2019**: 3/5 Lab Sections (73 students), Average Rating: 4.83 (4.9/4.7/4.9).

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## Work Experience

- May 2017 – **Data Scientist Intern**, *Perscio*, Indianapolis, IN.  
Aug 2017 ◦ Tidied, transformed, visualized and modelled healthcare data to help clients make effective data driven decisions.  
◦ Built quick data driven reports and tools using Tableau and Shiny (effective web based presentation of data, in R).  
◦ Collaborated with the state of Indiana and SPEA(at IU) to work on opioid prescription trends in the state.  
◦ **Skills utilized**: R (tidyverse), Tableau, Shiny.
- Jan 2017 – **Undergraduate Research Assistant**, *Purdue University*, West Lafayette, IN.  
April 2017 ◦ Performed Statistical data analysis and modeling on a cyber crime dataset to understand and predict deviant behavior in the cyberspace.  
◦ **Skills utilized**: R, SPSS.

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## Talks

- March 2019 **K. Misra** - footrulr: An R Package for measuring the performance of Machine Generated Text. Chicago R Unconference, 2019
- October 2019 **K. Misra** - 2 Lectures, Modern NLP: From word vectors to sequence models to BERT. Natural Language Processing class (CNIT 581) taught by Dr. Julia Rayz

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## Awards

- September 2019 **Holistic Safety and Security Research Travel Grant**, *Purdue Polytechnic Institute*.  
Awarded \$500 to present published research results at IEEE-SMC 2019
- May, **CIT Research Travel Grant Award**, *Purdue CIT*.  
September 2019 Awarded \$1200 to travel to CogSci 2019 (\$600) and IEEE-SMC 2019 (\$600) and present published research results
- April 2019 **Best Student Presentation**, *CERIAS Symposium*.  
Award Presented in Association with the Holistic Safety and Security Research Impact area
- March 2019 **Conference Travel Award**, *Chicago R Unconference*.  
Travel and Lodging Grant (\$150)
- April 2018 **Best Undergraduate Research Poster**, *Purdue OUR Expo*.  
Award presented as a result of a successful presentation of my research poster titled *Predicting future interaction between predators and decoys in an online conversational environment*
- January 2018 **Research Scholarship**, *Office of Undergraduate Research, Purdue University*.  
Semester long scholarship to work on predatory content in conversational environments
- June 2017 **First Place**, *Indy Civic Hackathon*.  
Open Innovation Challenge - Awarded for developing an exploratory tool to map Health Concerns in various counties of Indiana with the respective budget allocations

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## Skills

- Programming R (Expert), Python (Expert), SQL (Proficient), C++ (Beginner, mostly Rcpp),  
LaTeX (Beginner)
- Libraries pytorch, tidyverse(R), tidymodels(R), tensorflow, Rcpp, gensim
- Statistics Probability Theory, GLMs, Statistical Inference, Bayesian Models (Beginner)
- Natural Languages English, Hindi, Gujarati, Odiya

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## Graduate Coursework

- Natural Language Understanding
- NLP in Information Security
- Probability Theory
- Deep Learning
- Deep Learning in Cybersecurity
- Design of Experiments
- Linguistics Semantics
- Philosophy of Applied Science
- Semantics of Humor

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## Mentoring

- 2018-2019 John Phan (Undergraduate) Gender Bias in Word Embeddings
- 2019 Addison Farinas (Undergraduate) Analysis and Annotation of Humorous News Headlines

- 2020 Qingyuan "Carol" Hu and Yi Zhang (Undergraduates) Exploring Lexical Irregularities in Hypothesis-only Models of Natural Language Inference **Awarded second place at PURC 2020**

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## Service

- 2018 IEEE-IRC Reviewer  
2019 \*SEM (Secondary Reviewer)  
2020 CogSci 2020 Reviewer  
2020 CRC Press Book Reviewer  
2020 IJCAI Reviewer

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## Professional Affiliations

Cognitive Science Society (CogSci)  
Institute of Electrical and Electronic Engineers (IEEE)  
Center for Education and Research in Information Assurance and Security (CERIAS)  
Society for Mathematical Psychology (MathPsych)

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## References

### Academia

- Dr. Julia Rayz
- Dr. Dawn D. Laux
- Dr. Allyson Ettinger
- Dr. Victor Raskin

### Industry

- Kent Hiller
  - Bob Boehnlein
- (more upon request)