

## Education

**University of North Carolina at Chapel Hill**

Aug 2016-May 2020

B.S. Computer Science, Entrepreneurship Minor -- GPA: 3.87/4.00, Major GPA: 3.94/4.00

Scholarships: STEM Diversity Scholarship, Chancellor's Science Scholarship (Full Ride, Academic Merit)

Relevant Graduate Course Work: Deep Learning and Natural Language Processing, Conversational Models in Artificial Intelligence

## Skills

Python, Java, Machine Learning, AI, Computer Vision, Natural Language Processing, Tensorflow, Pytorch, Deep Learning, JavaScript, AngularJS, HTML, CSS, SQL, Linux, Swift, Android Studio, GitHub, React, Bayesian modeling, Bayesian statistics

## Related Work Experience

**Facebook Machine Learning Engineer**

Oct 2020 – present

-Probabilistic Programming Languages (PPL) team, build Bayesian models and support XFN collaborations

**Bubble Software Engineering Intern**

Feb 2020 – Jun 2020

-Microinternship, built backend functionality for exact-match search in PostgreSQL

**Ethena Software Engineering Intern**

July 2020

-Microinternship, built end-to-end consumer-facing signup flows for partnership companies and internal admin pages (React)

**Bubble Software Engineering Intern**

Feb 2020 – Jun 2020

-Built and owned project to import Figma design files into Bubble's website and app building space (Coffeescript)

**Facebook Software Engineering Intern**

May 2019 – Aug 2019

-Designed and built an anomaly detection model to remove mismatched candidate recommendations as part of the Recruiting org

**Yelp Applied Machine Learning Intern**

Jan – May 2019

-Developed WTTE-RNN (Weibull Time to Event RNN) models to predict business and advertiser retention using survival analysis

**Google AI Research Mentoring Program**

Sep 2018 – Sep 2019

-Nominated by WiNLP workshop at NAACL to collaborate and be mentored by Google Brain researchers in AI-related topics

**Walt Disney Company Emerging Technologies Intern, Seattle, WA**

Aug – Dec 2018

-Leveraged Oracle Text packages and SQL developer toolkits to extract salient themes from large amounts of SMS data

**Deep Learning and Artificial Intelligence Intern, MITRE Corp.**

May – Aug 2018

-Utilized generative adversarial networks to generate training images for classifiers to detect objects in satellite imagery (Python)

**Deep Learning and NLP Undergraduate Research Assistant**

Aug 2017 – Aug 2018

-Used neural methods and NLP to identify the linguistic characteristics of Alzheimer's (Python, Tensorflow)

-Detected and classified circumstances of domestic abuse using neural networks (Python, Tensorflow)

**Making Science Visible - NSF Research Experiences for Undergraduates**

Aug 2016 – May 2017

-Created web applications to aggregate and analyze data from K-12 science visualization programs (Javascript)

-Designed a novel algorithm using Levenshtein Edit Distance to compare student interaction data

## Refereed Publications

**Karlekar, S., Bansal, M.** (2018, Nov). SafeCity: Understanding Diverse Forms of Sexual Harassment Personal Stories. In *EMNLP 2018*, Brussels, Belgium.

**Karlekar, S., Niu, T., Bansal, M.** (2018, June). Detecting Linguistic Characteristics of Alzheimer's Dementia by Interpreting Neural Models. In *NAACL 2018*, New Orleans.

**Karlekar, S., Bansal, M.** (2018, June). #MeToo: Neural Detection and Explanation of Language in Personal Abuse Stories. In *NAACL-WiNLP 2018*, New Orleans.

Becker, S.J., Daughtry, C.S.T., Jain, J., & **Karlekar, S.** (2015, December). *Developing a Method to Mask Trees in Commercial Multispectral Imagery*. Poster presented at the American Geophysical Union Fall Meeting, San Francisco, CA.

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## Volunteer and Leadership

### Bluebonnet Data Science Fellow for NC-SD-13's Democratic Campaign

June 2020 - present

-Volunteer data scientist for Miss Barbara Yates-Lockamy's campaign, analyze+predict voter turnout, path-to-victory strategies, etc.

### Leader of Tech for Social Good Affinity Group – Rewriting the Code Fellowship

Aug 2018 – Aug 2019

-Expose and encourage peers to build socially useful tech by hosting webinars and organizing special programs and hackathons

### Community Service and Outreach Committee Chair – Chancellors Science Scholars

Jan – May 2018

-Led and planned community service activities for Chancellors Science Scholars

### Outreach360 Local Refugee Mentor

Aug 2016 – Aug 2018

-Provide mentorship and tutoring in Math, Science, and English to young Burmese refugees living in the Chapel Hill area

### Founding President of Club Luminous

Feb 2014 – Aug 2017

-Founded a community outreach service program that exposes elementary and middle school students to advanced STEM topics  
-Led my own chapter, teaching SCRATCH programming and MIT App Inventor (300+ volunteer hours), created and maintained website  
-Collaborated with partners and raised money to grow Club Luminous into 11 chapters across 3 states

### HackCL Director – Club Luminous Hackathon

April 2016

-Directed the first ever annual HackCL, a hackathon for low-income 4th-8th graders as a satellite event for the USA SciEng Festival  
-Managed the Club Luminous team, sought out sponsorships and partners, developed curriculums for student workshops, led lessons, arranged for food and swag bags, and coordinated student presentations

## Honors and Awards

### CRA Outstanding Undergraduate Research Award Runner-Up

Jan 2020

### Neo Scholar – Mentorship Community for Entrepreneurship

Sep 2019 - present

### Ernest H. Abernethy Prize for Student Publication – Chancellor's Award

Apr 2019

### Phi Beta Kappa Honor Society

Apr 2019 – present

### EMNLP 2018 Student Scholarship for Travel, Lodging, and Conference Registration

Sep 2018

### Moogfest Young Engineers Scholarship – Sponsored by Fidelity and Girls Who Code

May 2018

### Grace Hopper 2018 UNC Chapel Hill Scholarship

Apr 2018

### 1<sup>st</sup> Place Undergrad Math & Computer Science Poster - National Sigma Xi Research Conference

Nov 2017

### STEM Diversity Scholarship – Full Scholarship (Tuition/Room/Board), Academic Merit

Jun 2016 – May 2020

### Chancellor's Science Scholars – 10k/yr Scholarship, Academic Merit

Jun 2016 – May 2020

### Rewriting the Code, Women in Computer Science Fellow

Sep 2017 – May 2020

### Dean's List for All Semesters

Jun 2016 – May 2020

## Relevant Projects

### SafeCity: Understanding Diverse Forms of Sexual Harassment Personal Stories – EMNLP 2018 (Python)

-Present new task of automatically categorizing and analyzing various forms of sexual harassment stories found on online forums  
-Use CNN-LSTM models to perform both single-label and multi-label classification, achieving high accuracies and Hamming scores  
-Present LIME analysis, word embedding visualization, saliency heat-maps, and activation clustering to interpret neural models  
-Extract neural features that can help identify unsafe areas, circumstances of harassment, and repeat offenders  
- <https://arxiv.org/pdf/1809.04739.pdf>

### Detecting Linguistic Characteristics of Alzheimer's Dementia (AD) by Interpreting Neural Models – NAACL 2018 (Python)

-Develop CNN, LSTM-RNN, and CNN-LSTM neural models to differentiate between AD-positive and AD-negative language  
-Achieve new independent benchmark accuracy for AD classification task  
-Provide visualization of learned factors of neural models using activation clustering and first derivative saliency heat maps  
-Perform novel automatic pattern discovery inside activation clusters and consolidate AD patients' grammar patterns  
- <https://arxiv.org/pdf/1804.06440.pdf>

### #MeToo: Neural Detection and Explanation of Language in Personal Abuse Stories – NAACL 2018 (Python)

-Develop CNN, LSTM-RNN, and CNN-LSTM neural models to detect domestic abuse stories in Reddit Domestic Abuse data  
-Achieve 95.8% accuracy in classifying posts as containing abuse stories vs. not containing abuse stories (new SOTA)  
-Provide interpretable and explainable analysis of neural model's predictions using activation clustering techniques  
- <http://www.cs.unc.edu/~mbansal/papers/winlp2018-karlekar-bansal.pdf>