

# KESHAV BHANDARI

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## SUMMARY

- **Expertise:** ~3.5 years of comprehensive experience in the Artificial Intelligence (Machine Learning, Deep Learning), Big Data Analytics, Cloud Computing & Automation (AWS), Web Scraping
- **Technology Stack:** Python, R, PySpark, SQL, Selenium/Beautiful Soup, AWS, Git, Tensorflow (Advanced), PyTorch
- **A.I. Research Interests:** Explainable A.I., Recommendation Engines, Audio Signal Processing, AI + Music, NLP

## EDUCATION

<b>Northwestern University, McCormick School of Engineering</b>	<b>Sep 2021– Dec 2022</b>
• <i>Master of Science in Artificial Intelligence (GPA: 4.0/4.0)</i>	<i>Evanston, IL, USA</i>
• Coursework: NLP, ML, Deep Learning, Deep Reinforcement Learning, Deep Generative Models	
• <b>Purdue University, Krannert School of Management</b>	<b>Aug 2012 – May 2016</b>
<i>Bachelor of Science in Business Management &amp; Marketing (Dean's List, 2013, GPA: 3.6/4.0)</i>	<i>West Lafayette, IN</i>

## RESEARCH WORK

- **Interactive Audio Lab, Northwestern University** 2022
  - **NeurIPS '22 Accepted:** VoiceBox: Privacy through Real-Time Adversarial Attacks with Audio-to-Audio Models
- **Project Dhvani** 2021
  - **Conference presentation:** “Augmentations to improve rare bird call classification for a highly imbalanced multi-label soundscape environment”, 11<sup>th</sup> International Conference on Ecological Informatics (ICEI 2020+1), Digital University Kerala, India, Nov’ 21
  - **Grant awarded:** AI for Earth grant, Azure, Microsoft, Oct’ 21, “Using deep learning to build a robust automated recognition system for rare and endangered birds in India”.

## PROFESSIONAL EXPERIENCE

<b>Boston Consulting Group</b>	<b>Jun 2021 – Aug 2021</b>
Summer Data Scientist Intern	<i>Los Angeles, CA, USA</i>

Walgreens: Pricing Algo Team

- Built model drift scripts to understand / rectify deviations in price optimization algorithm in a MLOps framework.
- Built competitor index reports to benchmark Walgreens prices against that of primary and secondary competitors.

### Epsilon

Senior Data Scientist (Promoted twice)	<b>Sep 2017 – Feb 2021</b>
Machine Learning Product Engineering Team	<i>Bangalore, Karnataka, India</i>

- Built and Deployed Personalized Product / Offer Recommendation Engines with Tensorflow on AWS
  - Developed scalable sequential (NLP) deep learning based personalized recommendation engines using *LSTM-Attention & Transformers* in Python & PySpark, thereby improving clients’ hit rates by **1.5%-5%**.
  - Deployed numerous end-to-end machine learning & deep learning solutions as a product for retail and FMCG clients through PySpark, Python, AWS (SageMaker, Lambda, Docker, etc.) & BitBucket, achieving lifts between **3X to 9X**.
- Applied Explainable Machine Learning / AI to Black Box Models
  - Developed Gredel – a R-Shiny based package that fully automates the entire end to end predictive modeling process and makes black box XGBoost ML results interpretable.
  - Made sequential *LSTM & Transformers* deep learning predictive models interpretable by implementing a *permutation attribute importance* to extract the most important features from black box neural networks.

## ACCOMPLISHMENTS

- 2<sup>nd</sup> place in Epsilon India Recommendation Engine Hackathon (26 Teams) 2020
- Top 6% Kaggle Categorical Feature Encoding Challenge (1,342 Teams) 2019
- Champion Innovator Spot Award, Epsilon 2019
- Top 3% Kaggle TalkingData Ad-Tracking Fraud Detection Challenge (3,946 Teams) 2018
- Social Impact Finalist Google Online Marketing Challenge (2,000+ Teams) 2016

## LEADERSHIP & COMMUNITY SERVICE

<b>Data Kind, Bangalore Chapter</b>	<b>Aug 2018 – Oct 2018</b>
• Built NLP algorithm to extract tags from essays, stories & poems for Pratham Books, a non-profit publisher for underprivileged children, to improve its website’s search engine presence.	
<b>President, Purdue Marketing Association, Purdue University</b>	<b>Jan 2015 - Dec 2015</b>
• Increased membership acquisition by 400% and improved retention rate by >70%.	
• Raised \$3000+ through charity events to benefit Natalie’s Second Chance dog shelter.	