# Lilly Kumari

lkumari@uw.edu
https://lillykumari.github.io

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**EDUCATION**

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| **Ph.D. Student** | Sept 2018 - Present |
| Department of Electrical and Computer Engineering, University of Washington, Seattle | |
| **Bachelor of Technology** | 2012 - 2016 |
| Indian Institute of Technology (IIT), Roorkee Electrical Engineering CGPA 9.495 (On scale of 10), Department Rank 1 | |
| **Senior Secondary Examination, C.B.S.E.** | 2012 |
| CGPA 97.2% | |

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**PUBLICATIONS**

**Audience Prism: Segmentation and Early Classification of Visitors Based on Reading Interests**    2016
L. Kumari, S. Dhamnani, A. Bhatnagar, A.R. Sinha, R. Sinha, 3rd IKDD Conference on Data Science, (IKDD CODS 2016)

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**EXPERIENCES**

**Graduate Research Assistant (MeLODI Lab)**    Sept 2018 - Present
- **Conditional Data Summarization** | Prof. Jeff Bilmes

**Adobe Research Labs (Big Data Experience Lab, Bangalore) – Active Collaborator**    Jan 2017 – Jul 2018
- **Skill Tree Prediction for Adobe Photoshop Tasks** | Dr. Niyati Chhaya (Jul 2017 – Sept 2017
  **Summary**: Designed a LSTM based Recurrent Neural Network that predicts and ranks skill sets required by an end-user for completing a Photoshop tutorial/task.
- **Face2Tools: Deconstructing Image Effects using Online Text Tutorials** | Dr. Niyati Chhaya (May 2017 – Jul 2017)
  **Summary**: Developed a technology that detects makeup/edits given an image and recommends relevant PhotoShop tools & actions to achieve similar effects on a new image. Modified VGG16-Net for facial makeup detection/removal tasks (multi-class classification), built knowledge base of Photoshop tutorials, designed a novel algorithm for tool and effect recognition in tutorials and evaluated methods based on embedding, semantic, syntactic and concordance features for tuple retrieval and ranking. Secured the Best Creative Project Award.
- **Detecting Non-Human Traffic in Web Analytics Data with Labels from One Class** | Dr. Ritwik Sinha & Dr. Vishwa Vinay (Jan 2017 – July 2018)
  **Summary**: A novel approach to solve the problem of unavailability of negatively labeled points in the domain of bot detection. Proposed modifications to existing Positive-Unlabeled (PU) learning techniques (one class classification) to tackle the conditional independence assumption for labeled subset selection.

**Adobe Systems, Bangalore - Member of Technical Staff (Research group in Intelligent Services team)**    Jun 2016 – Jul 2018
- **Fashion Attribute Prediction for Image Based Similarity in E-Commerce Domain** (Nov 2017 - present).
  **Summary:** Developing an algorithm for content-based representation of apparel images in the form of category & attribute tags for application in similar image retrieval (visual search).
- **CTR Prediction for Display Advertising** (Jan 2017 - Oct 2017)
  **Summary**: Experimented with logistic regression, random forest classifier, XGBoost and Field Aware Factorization machine (FFM) to predict Click through rate (CTR) on a highly unbalanced click data. Developed an end-to-end service in PySpark and C for FFM based CTR model using word embeddings (Glove) for categorical features.

- **Sentiment Analysis & Classification of Reviews about Adobe Products on Social Media Channels** (July 2016 - Dec 2016)
  **Summary**: Developed an ensemble based approach using committee machines for aspect based sentiment analysis of customer reviews, reported improvements over a single model.

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| **PATENTS** | | |
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| | **Makeup identification using deep learning**<br>Niyati Chhaya, Lilly Kumari, Nitin Rathor, Vineet Vinayak, Rutuj Jugade<br>(Filed in US PTO office, Application - 15/994,837) | May 2018 |
| | **Detecting robotic internet activity across domains utilizing one-class and domain adaptation machine learning models**<br>Sunny Dhamnani, Vishwa Vinay, Lilly Kumari, Ritwik Sinha, Margarita Savova, David Weinstein (Filed in US PTO office, Application - 15/982,393) | May 2018 |
| | **Classification of website sessions using one-class labeling techniques**<br>Sunny Dhamnani, Vishwa Vinay, Lilly Kumari, Ritwik Sinha<br>(Filed in US PTO office, Application - 15/793,001) | Oct 2017 |

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**RELEVANT COURSEWORK**

- AI for Engineers
- Operations Research
- Deep Learning
- Natural Language Processing
- Machine Learning (coursera)
- The Data Scientist's Toolbox (coursera)
- Information Theory
- Modelling with Difference and Differential Equations
- Artificial Neural Networks and Applications
- The Data Scientist's Toolbox (coursera)
- Exploratory Data Analysis (coursera)

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| **INTERNSHIP** | | |
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| | **Adobe Research Labs - Research Intern | Supervised by Dr. Ritwik Sinha & Prof. Atanu R. Sinha | Manager & VP - Dr. Shriram Revankar**<br>**Understanding Digital Media & Its Audiences**<br>• Developed an algorithm for audience segmentation using different machine learning techniques and predicting the segment membership of a new reader  for effective personalization.<br>• Quantified various factors (author popularity, half-life/trendiness and topics & sentiment scores of articles) that affect Media Consumption Using Affinity Modeling and designed an algorithm to predict the audience size of a to-be-released article. | May - July 2015 |

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| **PROJECTS** | | |
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| | **Sentence Classification using Convolutional Neural Networks** - Independent Project<br>**Summary**: Implemented Yoon Kim's Paper in Keras and compared the model's performance with respect to word2vec & Glove embedding methods in both static and non-static environment. | Jan - Feb 2017 |
| | **Study of Electrical Activity of Human Brain through Intervention** - B.Tech. Thesis Project  | Supervised by Prof. Vinod Kumar<br>**Summary**: Researched about changes that occur in a human brain while being in natural versus urban landscapes. Built an logistic regression based algorithm that predicts the percentage by which a person's cortical activity increases in natural landscape. Demonstrated positive restorative changes in brain while being in natural environments. | Aug 2015 - May 2016 |
| | **A Genetic Algorithm based Back Propagation Neural Network for Weather forecasting** - Artificial Neural Networks Course Project | Supervised by Prof. G. N. Pillai<br>**Summary**: Developed a BP based genetic algorithm in MATLAB and C++ for weather forecasting (temperature, humidity and rainfall prediction) | Spring 2015 |

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| **TECHNICAL SKILLS** | |
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| | **Programming and scripting :** Python, C++, Java, MATLAB/Octave, SQL, R, Shell scripting |
| | **Libraries :** NLTK, gensim, Stanford CoreNLP, PySpark, Tensorflow, Keras, OpenCV, R Shiny |

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**AWARDS & ACHIEVEMENTS**

- Institute Silver Medal for obtaining highest CGPA in Electrical Engineering programme - Department Rank 1 in a class of 125
- Dr. G. Pande Medal for the girl student for standing first amongst girl students in all B.Tech. courses
- Laxmi Devi and Shri Banadri Das Scholarship for the best and outstanding girl student with excellence in academics amongst all girls in B.Tech. courses

- "Smt. Rama Devi Krishna Bhatnagar" Scholarship for the girl student amongst girl students in all Branches Undergraduate Programme.
- All India Rank 1 in IEEE Programming League 2015, conducted by IEEE Computer Society,

| EXTRA-CURRICULAR | | |
|---|---|---|
| | • Vice-Chairman, IEEE Student Chapter – IIT Roorkee. | 2014 - 2015 |
| | • Company Coordinator, Training & Placement Office, IIT Roorkee. | 2014 |
| | • Executive member in Thomso Organizing Committee Thomso - The Cultural Festival of IIT Roorkee . | 2013 |
| | • N.S.S. IIT Roorkee Part of Prerna classes which visits nearby rural areas to teach under-privileged children. | 2012 - 2013 |
| | • Member of Web Development Team (Software Development section of IIT Roorkee). | 2013 - 2016 |