

# Akshay Bhatia

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## RESEARCH INTERESTS

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Natural Language Processing, Statistical Modelling, Algorithms and Optimization Techniques, Software Development

## EDUCATION

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### University of California, Merced

*Master of Science in Electrical Engineering and Computer Science(EECS)*

Merced, CA, USA

*Aug. 2021 – May 2023(Expected)*

### Jaypee Institute of Information Technology

*B.Tech, Electronics & Communication Engineering(ECE)*

Noida, UP, India

*July. 2014 – June 2018*

**Thesis:** Real-time control of Zigbee for Smart Shopping System using RFID

## WORK EXPERIENCE

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### Knorex Pte. Ltd.

*Research Scientist I - NLP*

April 2019 - July 2021

*Pune, India*

Supervisor: [Jin Yiping](#)

- Worked on training and evaluating text classification and generation models for [Knorex KAIROS's](#) Brand Safety and Contextual targeting offerings. Improved overall CTR on an average advertising campaign by 12%. Work published at NAACL SRW 2021.
- Responsible for the end-to-end development of Sentinel: Intelligence-as-a-Service Platform for Content Moderation at Scale, an Active Learning platform to build text classifiers without any labeled data - a research grant project supported by Enterprise Singapore.
- Enhanced Transformer models with delexicalisation and entity masking for the task of automatically generating high quality advertising slogans for Dynamic creative optimization, surpassing previous benchmark results by 33%. Work published at Natural Language Engineering - Cambridge University Press 2021.

### CampK12

*Machine Learning Developer Intern*

May 2018 - Dec. 2018

*Gurugram, India*

Supervisor: [Anshul Bhagi](#)

- Implemented a real-time object detection and on-device scene classification model for K12 language learning Lingolens. Trained a custom YOLO model to detect ~150 objects with an mAP of 67%.
- Subsequently optimized the on-device detection and classification inference speeds by 19% with only 6% performance degradation compared to SoTA methods such as RetinaNet and SSD.
- Devised embedding and attribute-aware similarity models for the automatic question tagger system for the peer to peer question answering forum for the CampK12's [Generation Blockchain 2018 Summit](#).

### Spikeway Technologies Pvt. Ltd.

*Machine Learning Intern*

May 2017 – July 2017

*Noida, India*

Supervisor: Praveen Kumar

- Led a 3 member team for the development and deployment of a ML-based Book Genre Classification system to classify books into their genres, based entirely on its title, without knowledge of author and origin.
- Extended trained models through containers and pods in production and directly collaborated with the backend team on the prototype of a News Article Authorship Plagiarism Checker.

## PUBLICATIONS

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### Seed Word Selection for Weakly-Supervised Text Classification with Unsupervised Error Estimation

Jin Yiping, **Akshay Bhatia**, Dittaya Wanvarie

*NAACL SRW 2021 — arXiv / Paper*

### Toward Improving Coherence and Diversity of Slogan Generation

Jin Yiping, **Akshay Bhatia**, Dittaya Wanvarie, Phu T. V. Le

*Natural Language Engineering, Cambridge University Press 2021 — arXiv/Pre-print*

## MANUSCRIPTS

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### Sentinel: In-House Active Learning Platform

Akshay Bhatia, Vishakha Kadam, Jin Yiping, Tho Nguyen

*In progress*, 2021 — Paper

## TEACHING EXPERIENCE

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### CSE 005 - Intro to Computer Applications

Graduate Teaching Assistant, University of California Merced, Spring 2022

Jan. 2022 - May. 2022

### CSE 120 - Software Engineering

Graduate Teaching Assistant, University of California Merced, Fall 2021

Aug. 2021 - Dec. 2021

### CSE 031 - Computer Organization

Graduate Teaching Assistant, University of California Merced, Fall 2021

Aug. 2021 - Dec. 2021

## RELEVANT PROJECTS

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### Drone Fault Detection Based on ROS Topics

Course Project for EECS 283: Advanced Topics in Intelligent Systems with [Azin Shamshirgaran](#)

Aug. 2021 - Dec. 2021

- Explored the domain of external and internal fault detection systems for autonomous UAVs and drones. Main contributions included gathering and labeling of sensory data using a Parrot Bebop 2 drone and experimenting with variations of ordering techniques to enhance CNN models for 1D sensory data.
- Improved vanilla CNNs using upsampled ordering for sensory data with inclusion of novel features, outperforming classical machine learning and existing heuristics' based algorithms with an AUC-ROC score of 94.3%.

### Road Network Extraction

Movehack Global Mobility Hackathon 2018

July 2018 - Aug. 2018

- Road network segmentation and extraction system using high resolution satellite imagery for low cost terrain monitoring and infrastructure assessment. Implemented the U-Net model on the [Mnih Massachusetts](#) dataset.
- Optimized the trained model for real-time applications with final inference speed of only 0.28 seconds on Tesla K80 GPU achieving a mask accuracy of 95% and a dice score of 65% on the validation set.

### TravelCamp

Submission for IMAD 2016 - [Live Demo](#)

Nov. 2016 - Dec. 2016

- A social blog/profile web app developed for IMAD 2016 built with NodeJS, ExpressJS, MongoDB, PassportJS.
- The web app follows RESTful approach for CRUD operations and was deployed using Heroku.

## RELEVANT COURSEWORK

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Object Oriented Systems and Programming, Data Analysis using R, Unix Programming, Data Structure and Algorithms, Algorithm Analysis and Design, Modern Applied Statistics, Advanced Topics in Intelligent Systems

## TECHNICAL SKILLS

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**Languages:** C++, Java, Python, R

**Frameworks:** Tensorflow, PyTorch, FastAI, OpenCV, NumPy, Scikit-learn, Flask, MongoDB

**Developer Tools:** Git, AWS, Docker, Latex

## REFERENCES

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### Prof. Ravinder Ahuja

Assistant Professor, Computer Science & Engineering, Galgotias University, Noida, India(Previous: Professor, CSE, IIIT)

[🌐 homepage](#) [✉ email](#)

### Jin Yiping

Senior Research Scientist, Knorex Pte. Ltd., Bangkok, Thailand

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### Anshul Bhagi

CEO & Co-Founder, CampK12, Gurugram, India

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\*\* Links in blue are hyperlinks