

## JASSIMRAN KAUR

Senior Research Engineer (ML) at BBTv

Ex IBM Research AI, Georgia Tech, Girls Who Code, Infosys

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**Overview:** Senior Research Engineer (ML) at BBTv, Vancouver, Canada with 6+ years of experience.

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### Education

- **Georgia Institute of Technology, Atlanta, GA :** *Master of Science in Computer Science -2016 (GPA - 3.90/4)*
    - *Specialized in Interactive Intelligence. Project advisors: [Dr. David Joyner](#)*
  - **UIET, Panjab University, India:** *Bachelor of Engineering in Information Technology-2009 (GPA - 3.93/4)*
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### Work Experience:

- **BBTV, Vancouver, Canada:** **03/2020 - till date**
  - **VISO PRISM:** Currently working on inappropriate content detection in Youtube as per BBTv Trust and Safety policy for enhanced Brand Safety in advertising by using ML classifier system.
  - **VISO Spotlight:** Led the Research team to improve search of relevant content for Ad Sales and Content Discovery Team by generating summaries of videos using keyword extraction and named entities recognition algorithms from youtube video meta-data like Title, Description, transcripts, and comments
  - **VISO Score:** Build DL based system to provide a unique ranking score to each youtube video based on brand safety, performance metrics and perceived sentiment of viewers. Trained and put into production Sentiment analysis models on noisy youtube video comments, models for offensive content detection in youtube videos and ML models on metadata statistics to give youtube videos a performance metric score.  
(**Tools:** Python, PyTorch, Transformers, SimpleTransformers, NLTK, Spacy, Flair, Vader, AllenNLP, scikit-learn, NER-D, PKE toolkit, HuggingFace NLP, Wandb, AWS Cloud Training )
- **IBM Research AI, Bangalore, India:** **07/2018 - 02/2020**
  - **Project VerifAI 360:** Lead designer and developer of VerifAI 360, a testing framework for Deep Learning (DL) Models against metrics like accuracy, model bias, adversarial robustness, sensitivity, and explainability supporting intelligent test case generation techniques for text data, image data, audio data, structured data, watson conversation data, and time series data. Lead new client engagements and supported Business Development team with POCs. Now part of IBM's Ignite Automation Testing Platform.
  - **Data Augmentation for NLP Applications:** Worked on novel data augmentation strategies to improve data volume and variety to improve the model's robustness like typos, paraphrase, tense variation, adding noise, voice variations, adjective variations, sentence ordering, and etc. Filed a disclosure & published a [paper](#)
  - **Creative Generation of Fashion Images:** Intelligent augmentation using external common-sense knowledge to generate new fashion images instead of random transforms. Worked on various GAN formulations and implemented state-of-art GAN models. Filed a disclosure  
(**Tools:** Python, Java, Keras, PyTorch, Tensorflow, Flask, Swagger, NLTK, Spacy, scikit-learn, StanfordNLP, Gensim, OpenCV, Watson Machine Learning, IBM Cloud Object Store, MongoDB)
- **Girls Who Code, Atlanta, USA:** **05/2016 - 07/2016**
  - **Teacher:** Taught 20 High school students Scratch, Python basics, pygame & turtle library, HTML, CSS, Javascript, bootstrap, Algorithms and Robotics using Arduino. Manage the classroom, help students in assignments and projects and mentor them.
- **Start Up Farms (Alertenterprise), Chandigarh, India:** **02/2011 - 05/2013**
  - **Customer Support Engineer:** Provided functional & technical support for NERC CIP, SOX audit compliance, IT OT convergence and Access & Identity management to US Utility companies (FPL, Duke Energy, NIPSCO, SRP, CPS Energy, ITC) that use Alert Enterprise's (a subsidiary of Start Up Farms) *Identity and Access Management* solutions for Critical Infrastructure protection. Provided technical support and configuration change management to customer & onsite teams.

- **Specialist Developer:** Prototyping, developing, testing and supporting new features and functions into Enterprise Sentry solution which leverages unique Security Convergence capabilities that combine cyber security and physical security for enterprises following *agile development methodologies*.
  - Developed various Java APIs for populating data in reports and integrating with other applications.
  - Developed features and unit test code as per new customer requirements
- **Systems Engineer at Infosys, Chandigarh, India** **07/2009 - 03/2011**
  - **Travel website development:** Used ASP.Net, ADO.Net, SQL Server 2008, C#, VSS, Ajax and VSS.
  - **CGC Oracle Consolidation Assessment & Migration:** Oracle 11g, .Net Applications, Sun Solaris Platform
    - Analyzed and migrated Capital Group of Companies' legacy servers from HP to Sun Solaris.
    - Developed a .Net program to analyze data & generate server, DB, & application migration reports.

#### Technical Skills ([Github Link](#)):

- Deep Learning, a 5-course specialization by deeplearning.ai on Coursera. Specialization [Certificate](#)
- Machine Learning and Deep Learning Frameworks/Libraries: Keras, PyTorch, Tensorflow, scikit-learn, NLTK, Spacy, Transformers, AllenNLP, StanfordNLP, Watson Studio
- Application Development: MEANStack, [AngularJS](#), JavaScript, SQL, MongoDB, [Ruby on Rails](#), [Android Development](#), IBM Bluemix, IBM Cloud Object Store
- Languages: Python, Java (J2EE), Ruby, C
- API: Python-Flask, Java Springs, Swagger
- Software Engineering: SDLC - Agile & Waterfall Methodology, Identity & Access Management
- Project Management: Project Management Foundations [Certification](#)

#### Research and Innovation:

- **Papers:**
  - U. Desai, J Kaur, S Khare, S Tamilselvam, S Mani "Benchmarking Popular Classification Models' Robustness to Random and Targeted Corruptions" ([link](#))
  - J Kaur, R Lui, F Faradji, G Mercey, G Ohashi, M Fatourehchi "How can we make content on Youtube Safer" accepted to NeurIPS 2020 WiML workshop ([link](#))
- **Patents:**
  - Combined Data PreProcessing and Architecture Search for Deep Learning Models
  - System and Method for Guided Policy Generation for Data Augmentation & Test Case Generation
  - System & Method for Contextual Augmentation for New Fashion Design (Under Filing Process at IBM)

#### Highlighted College Projects:

- **A-IQ:** Programmed an AI agent to solve Raven's Progressive Matrices Problems (A standard non-verbal intelligence test)
- **Coffee Rewards:** Created a Rewards Management Android App for a Coffee shop.
- **ML Analysis:** Performed analysis on Customer WholeSale Dataset using various supervised learning, unsupervised learning, randomized optimization and reinforcement learning techniques to get helpful insights.

#### Talks and Presentations:

- "Testing AI: Are we There Yet? Let's Develop Responsible AI", GHCI, India, November 2019
- "VerifAI 360: A testing framework" at [Research AI Day](#) - Usable Artificial Intelligence, India, June 2019
- "Introduction to Super Power Deep Learning" at Society for Women Engineers ([SWE](#)) India, April 2019
- "Testing and Verification of Deep Learning Models" at IBM Developer Day, India, March 2019.

#### Volunteer Work:

- **Salvation Army, San Antonio, TX:** Trained people to use computers for creating resumes & applying for jobs
- **NYKS:** Scholarship Recipient of youth delegation: International Youth & Cultural Exchange program to China.
- **Hour of Code, Atlanta, GA:** Conducted hour of code at International Community School (Dec 2015).
- **Youth United, Chandigarh:** Managed task force work allocation; managed publicity of events/projects through social and print media; Liaised with state-level administration, police and other non-profit organizations; Developed Smiling Future project website; organized events for underprivileged children.