# Harkirat Gill

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Lisle , IL

Focused and driven developer with passion for artificial intelligence and machine learning solutions. Strong background in mathematics and practical experience in designing, optimizing, and implementing Neural Networks and other Machine Learning models in Computer Vision, Financial Prediction, and NLP problems in web and mobile environments. Strong understanding and experience with Java and Python Object Oriented Design Principles.

## SKILLS

**Languages:** Java, Python, JavaScript, R, C++, Swift, ActionScript

**AI and Analytics:** Keras, TensorFlow, TensorFlowJS, PyTorch, CoreML, Sklearn, Numpy, Pandas, Google Cloud ML

**Mobile:** Android Studio, XCode, Swift, libGDX Game Library, Box2D Physics

**Web:** Django, Flask, AWS S3, AWS Lambda, Heroku, Google App Engine, Express.js, HTML, CSS, JavaScript, AJAX, XML

**Databases:** SQL, MySQL, PostgreSQL, MongoDB

**Other:** Git/Bitbucket, Google Analytics, Paypal API, Google Maps API, JUnit testing, Jira**,** Basic finance theory and intellectual property law.

## Education

**Benedictine University Undergraduate**
Graduating May 2020

**Major:** Computer Science and Mathematics

**GPA:** 3.97/4.00

**Relevant Coursework:** Machine Learning, Probability and Statistics, Data Structures & Algorithms, Object Oriented Programming and Design, Database Management Systems, Technical Communications, Software Engineering

**Competitions:** Placed 1st in 2019 regional programming competition

**Awarded Presidential Scholarship**

## Experience

**Happilabs Machine Learning Consulting Intern** **Summer 2019**

- Created vision models for detecting image quality and recognizing certain class of objects
- Implemented models in mobile environment to identify specific product for order by extracting text and recognizing object type
- Worked with Keras, CoreML, Google Cloud ML, AWS S3, AWS Lambda

**University Computer Vision Research** **Fall 2019 – Spring 2020**

- Research focused on designing method of defending image classification model against adversarial attacks
- Used defense model to improve accuracy of base model compared to similar technique
- Currently working on creating image classifiers inherently more robust

## PROJECTS

**Artificial Intelligence/Machine Learning**

**Stock Market Prediction Project:** Used artificial neural network and LSTM to predict S&P and DOWJIA prices based on Google trends search data based on existing research.

**Doodle Renderer Project:** Created generative model using autoencoders and Generative Adversarial Network to render simple input doodle with color and shade.

**Music Generation:** Used genetic algorithms and LSTM to generate classical piano music.

**Additional:** Bayesian network financial predictive model, facial recognition, LSTM natural language generation, reinforcement learning in game, TensorFlow pose estimation for action commands.

**Software/Mobile/Web Development**

**Mindstak Discussion Platform:** Created and deployed web platform with Django, PostgreSQL, and Heroku aimed at making online discourse more constructive.

**Mobile Android Apps:** Programmed three Android apps for Google Play in Java using libGDX game framework, Box2D Physics, and Android Studio and designed UI, animations, graphics, and audio effects.

**Additional:** Web applications created with MEAN stack, Java desktop applications, Flask application with TensorFlow.js