# NIKHIL BHAT

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## Education

**NORTHEASTERN UNIVERSITY** BACHELOR OF SCIENCE IN COMPUTER ENGINEERING & COMPUTER SCIENCE **MAY 2021**

GPA: 3.98/4.00    Major GPA: 4.00/4.00    Honors Program

**Activities:** TA for Discrete Structures, Founding Member of Northeastern Robotics & Automation Society, Teacher at MIT Splash, Honors Living Learning Assistant for Northeastern Honors Program, Build Studio Engineer at Northeastern Generate

**Coursework:** Computer Vision, Machine Learning and Pattern Recognition, Robotic Science and Systems, Algorithms and Data Structures

## Work Experience

**AMAZON** SOFTWARE ENGINEERING INTERN **JUNE 2020 – AUGUST 2020**

*Java, AWS (S3, Lambda, DynamoDB)*

- ❖ Saved over $100,000 a week by expanding a native AWS service used to identify software products being sold at a loss
- ❖ Developed an automated service running on AWS Lambdas to update business owners on recently suspended products

**INTEL** SOFTWARE ENGINEERING CO-OP **JANUARY 2020 – JUNE 2020**

*Python, OpenCV, C++*

- ❖ Developed computer vision and data processing algorithms for 3D Athlete Tracking at the Tokyo 2021 Olympic Games
- ❖ Implemented a modified IK algorithm on the biomechanical analysis module, reducing the initial runner velocity calculation error by 70%
- ❖ Designed an end-to-end static camera calibration application using OpenCV and Tkinter resulting in under 5cm of reprojection error
- ❖ Decreased runtime of the biomechanical analysis module by 20x through algorithm optimizations and data processing adjustments
- ❖ Deployed a modular unit-testing framework for verifying camera calibration accuracy and integrated it into the team's CI/CD pipeline

**GREENSIGHT** SOFTWARE ENGINEERING CO-OP **JANUARY 2019 – JULY 2019**

*Python, OpenCV, ROS, C++*

- ❖ Developed an autonomous drone navigation system using OpenCV which won the company $30,000 in the Verizon 5G Robotics Challenge
- ❖ Designed a self-correcting algorithm for heliostat motion, by using OpenCV coupled with a PID controller to account for GPS errors
- ❖ Implemented LIDAR-based SLAM navigation algorithms for an autonomous ground robot using ROS and Google Cartographer
- ❖ Created and deployed a ROS network of 100 interconnected devices to track the sun and generate solar power

**BARNES AEROSPACE** DATA ANALYST INTERN **MAY 2018 – AUGUST 2018**

*Python, NumPy, Pandas, VBA*

- ❖ Reduced turbine center frame inspection times by 30% by developing a Python program to implement statistical process control
- ❖ Designed an integral error reporting software using PyQt5 and MySQL for supervisors to monitor the manufacturing plant
- ❖ Developed an algorithm in Python to categorize part defects based on problem description fields utilizing regular expression matching
- ❖ Built a VBA application to dynamically schedule manufacturing operations, accounting for variable lead times and delivery delays

**NORTHEASTERN UNIVERSITY FIELD ROBOTICS LAB** UNDERGRADUATE RESEARCH ASSISTANT **OCTOBER 2017 – APRIL 2018**

*C++, ROS, Python, ViSP*

- ❖ Programmed a real time kinematic GPS driver using C++, and integrated it into the autonomous car ROS environment
- ❖ Furthered development in drone navigation techniques utilizing AprilTag image detection with ViSP and OpenCV

## Leadership

**NORTHEASTERN IEEE** VICE PRESIDENT **AUGUST 2017 – PRESENT**

- ❖ Facilitated and ran club meetings for the largest professional engineering society at Northeastern
- ❖ Organized an ECE career fair attended by over 100 ECE students by reaching out to companies across the Greater Boston area

**REACH COLLEGE CONSULTING** CEO & CO-FOUNDER **MAY 2018 – AUGUST 2019**

- ❖ Founded a company to help students with the entire college application process, from selecting schools to interview preparation
- ❖ Improved the SAT scores of 100% of clients, and helped 2 clients achieve perfect scores

## Skills

**LANGUAGES –** Python, C++, Java, MATLAB          **TECHNOLOGIES –** OpenCV, ROS, Arduino, Git, AWS, Google Cloud, Tensorflow

## Personal Projects

| FANCILY | DON'T TOUCH MY OJ | SESQUIPEDALIAN | EKONDO | ENDLESS TRIVIA |
|---|---|---|---|---|
| A machine-learning iOS app to recommend daily outfits from a user's closet based on individual stylistic preferences | A Raspberry Pi based computer vision system that sends a text alert when other people take your food from the fridge | A Words with Friends solver that reads the current game board using OCR and produces the highest scoring move | A React web app that uses Google Cloud Vision and the EBay API to automatically sell products using just a single image. | A multiplayer Python game that uses the Wikipedia API to infinitely generate random trivia questions of varying difficulties |