

# Nathan Ballance

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## EDUCATION

**Rutgers University** | New Brunswick, New Jersey

**Major GPA: 3.51/4.00 | Cumulative GPA: 3.31/4.00**

**Bachelor of Science: Computer Science**

**Expected Graduation: May 2021**

**Relevant Courses:** Data Structures, Computer Architecture, Design and Analysis of Computer Algorithms, Principles of Information and Data Management, Internet Technology, Software Engineering, Artificial Intelligence, Software Methodology.

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## TECHNICAL SKILLS

- Java, Python, C, Spring Boot, React, Angular, HTML, CSS, JavaScript, MySQL, PostgreSQL, Assembly.
  - Git, GitHub, Bitbucket, Agile, Jira; Linux; Android Development; IAM, EC2, AWT, S3 and RDS in AWS.
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## PROJECTS

### E-commerce Marketplace

- Designed a full stack Angular and Java Spring Boot e-commerce website for buying and selling products efficiently.
- Worked in team of three. Developed project using team-oriented tools, e.g., Bitbucket, Jira, and Agile development.
- Hosted MySQL database on AWS RDS, connected via Spring JPA, and communicated to angular via REST API.

### Train Reservation

- Implemented a relational database system using AWS to support the operations of an online train reservation website.
- Worked in a team of three. Developed front-end user interface for customer and administrator logins using HTML.
- Collaborated on back-end using MySQL, Java, and JDBC connectivity between the user interface and database server.

### Enforcement Management

- Developed Maven build enforcement manager to ensure users program with supervisor-approved libraries for a project.
- Implemented with a Java Spring Boot back-end which communicates with a PostgreSQL server with approved libraries.
- Designed front end using React. Displayed licensed and approved libraries. Allowed a supervisor to build a project.

### Adversarial Search

- Completed an AI agent in Python for a turn-based adversarial game through grid interface using grid-based discretization.
- Created a game interface that displayed the board with all the nodes to update the board based on the player move.
- Evaluated heuristic values for all nodes using minimax search to indicate a better move for the agent or the adversary.

### Tuition Manager

- Created a GUI Java application in OOP to form a list of students and their tuition calculations based on the number of credits and their enrollment status. Displayed list of students with associated costs and users added and removed students.

### BMI Indicator

- Developed an Android Studio mobile application GUI that calculates BMI when the user inputs height, weight, and age.
  - Programmed GUI, in Java, to output a detailed analysis and lifestyle suggestion report based on age and BMI percentile.
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## WORK EXPERIENCE

### IoTecha – Product Programming and Assembly – Part-time – Cranbury, NJ

Dec. 2020 – Present

- Assembled hardware and installed software to be used across smart electric vehicle charging applications.
- Performed testing and quality assurance on products to be directly sold to multi-billion-dollar automobile manufacturers.

### Union Township Middle School – Tech Instructor – Hampton, NJ

Sep. 2016 – May 2018

- Developed and instructed multiple computer programming related courses that accommodated students aged from 6 to 14.
  - Ensured 30 students mastered software editing applications and completed Java coding projects for class certification.
  - Documented students' progress to create transcripts for evaluating performance and conducting any needed remediation.
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## LEADERSHIP EXPERIENCE

### Chess Club Leader and Coach

Sept. 2017 – May 2020

- Chair of Rutgers Chess Club: organized and planned events for club. Participated in PanAm Intercollegiate Competition.