# JESSE ELLIN

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## CAREER OBJECTIVE

To work in machine learning development, particularly Natural Language Processing, Natural Language Generation, and image detection with a focus on privacy, fairness, and ethics.

## EDUCATION

**Rensselaer Polytechnic Institute, Troy NY** *September 2022 - May 2023*
Master of Science in Computer Science

**Rensselaer Polytechnic Institute, Troy NY** *September 2018 - May 2022*
Bachelor of Science in Computer Science and Cognitive Science *GPA: 3.56*

## TECHNICAL SKILLS

Python; C++; C; Java; HTML/CSS/JavaScript; LaTeX; GitHub; AWS; Inventor Autodesk; Adobe Photoshop/Clip Studio Paint; MS Office; Ubuntu

## WORK EXPERIENCE

**SWCA Environmental Consultants, Remote** May 2021 - Present
*Assistant Data Specialist*

- Helped develop a Progressive Web App to run deep-network image object identification from drone footage. This built my understanding of full-stack development and taught me the React and Node frameworks.
- Updated our data labeling interface to accept and process audio inputs to generate filtered spectrograms for object identification labeling. This gave me experience with the Django environment and audio processing.
- Developed an implementation of Microsoft's Biophony model to accurately identify Bachman's Sparrow calls as a proof-of-concept. I am currently expanding the model to a generalized interface.
- Worked on multiple NLG data-to-text synthesis projects, which optimized workflow for internal teams and provided opportunities for external advertising.

**Guidance Analytics** January 2021 - April 2022
*Director of Development*

- Updated and documented existing code base, allowing for optimized performance and rapid updates.
- Developed Lighthouse labeling service for client-facing data upload and professional labeling. This relied on full-stack development knowledge and UI/UX skills, providing a platform for large-revenue projects and increased publicity.
- Developed and implemented best practices and compliance measures for development team, which introduced AGILE methods into our teams.

## RESEARCH

**MS Research** Sep 2021 - Present
*PI: Dr. Alex Gittens*

- The majority of modern research into fairness in machine learning looks at $\epsilon$-fairness in the learned model. Our goal is to measure the fairness of the underlying dataset, and see how this affects the accuracy of a fair model.
- By creating a framework for measuring dataset framework, we hope to provide precedent for developing data augmentation to make datasets more fair, which will help prevent learned bias and prejudice in applied machinle learning models.

**Machine Common Sense** May 2020 - Sep 2020
*Tetherless Worlds Constellation; Dr. Minor Gordon*

- Created an ETL pipeline to process WebDataCommons naturally written product description text from a loosely structured database. The results from this pipeline were then used to generate bucketed spatial sizes that helped develop common sense spatial relations between generic object classes.
- This project was working towards an overall common sense model that would help expedite a lot of the deep processes currently being tackled by machine learning.

## PROJECTS

**Personal Website**

Using HTML, CSS, and JavaScript, I am developing a personal website that will serve as an informal CV and micro-biography. The purpose of this project is to further develop my front-end development skills and create a personal landing page on the internet.

**Graphical Neural Network Builder**

Full-stack development project with the goal of providing a graphical interface for building deep neural network architectures. Once the flow diagram has been implemented on the front-end user interface, the back-end structure will provide the general code that will build the architecture in the selected language and libraries (primary focus is given to Python with TensorFlow/Keras).

## PROGRAMMING LIBRARIES

**Python**

ABC, Dash, DataClass, Django, Flask, Keras, Ktrain, Numpy/Pandas, Parsimonious, PyTorch, SkLearn, Spacy, TensorFlow, Typing

**Web Development**

JQuery, AJAX, Node.js, React.js

## WORLD LANGUAGES

**Conversational**

French

**Intermediate**

German, Portuguese

**Beginner**

Hebrew, Turkish, Arabic, Spanish

## LEADERSHIP

**Director of Development** Guidance Analytics

I lead the software development team, established best practices, ran meetings, and made sure we were on track for deliverable deadlines.

**Project Owner** Software Design and Development class project

I lead a small team of developers taking a project from concept to beta release over the course of a semester. This included Sprint planning and review, compiling deliverables, and enforcing target deadlines.

**Research Team Lead** Critical CS

I lead the homework development team for the Critical Computer Science pedagogical research project. This involved managing a large group of researchers, reading papers, extrapolating ethical concepts, and developing real world problems to model those concepts. Our team had to meet very tight and strict deadlines for deliverables on this project.

## EXTRA-CURRICULAR

- Rensselaer Orchestra (from Spring '19): Percussion line
- President and Vice President for Capoeira RPI (from Spring '19): Running classes and organizing events and groups
- Gap Year (2017-2018): International travel and cultural immersion in Europe and Africa
- Assistant Coach at Parkour Visions (2014-2017): Assisting coaches in parkour classes for students of various age, race, nationality, identity, sexuality, and mental health