**Andrew Morgan**

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*Feel free to contact me at the listed email or phone number above.*

**Education**

**Bachelor of Science**

University of Pittsburgh, Pittsburgh, PA December 2019

Double Major: **Economics-Statistics** and **Computer Science**

Cumulative GPA: **3.6**/4.0

Computer Science Coursework GPA: **3.6**/4.0

Economics-Statistics Coursework GPA: **3.7**/4.0

Dean’s List: 7 out of 9 Semesters *Magna Cum Laude*

**Work Experience**

**Frontend Developer** and **Project Liaison**

The Process Consultant, Pittsburgh, PA 05/2019 – 08/2019

* Migrated demo site content to new content management system to attract new clients.
* Enhanced user-interface to allow clients and users to easily upload and navigate content.
* Ensured management and technical teams have aligned goals and mutual understanding.

**Frontend Developer Intern**

Imagine Careers, Pittsburgh, PA 05/2017 – 08/2017

* Created modern-styled dashboard interface allowing clients to tailor their accounts.
* Collaborated with team to improve search and filtering system to increase user base.
* Increased user retention by adding search and filtering prompt within results.

**Barista**, Crazy Mocha, Pittsburgh, PA 08/2016 – 10/2018

**Software Developer/Engineer Skills**

Programming Languages:

|  |  |  |
| --- | --- | --- |
| Python (Proficient) | Java (Proficient) | Ruby (Proficient) |
| JavaScript (Fluent) | HTML (Proficient) | CSS (Proficient) |
| C (Fluent) | PHP (Fluent) |  |
|  |  |  |

Databases, Frameworks:

|  |  |
| --- | --- |
| Flask (Python) | PostgreSQL |
| Oracle DB (SQL) | Angular (TypeScript, JavaScript) |

Libraries:

|  |  |  |
| --- | --- | --- |
| jQuery (JavaScript) | SQL-Alchemy (Python) | Gunicorn (Python App Server) |
| PyTest (unit-testing Python) | Alembic (Database Migration) |  |

Software:

|  |  |  |
| --- | --- | --- |
| Unix/Linux | Heroku | Excel |
| Git (GitHub, GitLab) | STATA | Minitab |
| Virtual Machines (Hyper-V) | Tableau | JetBrains |
| Visual Studio | Eclipse | Atom (Editor) |

Other Software Developer/Engineer Skills:

|  |  |
| --- | --- |
| Software Design Lifecycle (SDLC) | Test-Driven Development |
| Agile Development | AJAX Web Applications |
| Full-Stack Development (Website as example) | Quality Assurance, Automated Testing |
| Database Management (SQL) | Frontend Development |
| Content Management Systems |  |

**Data Scientist and Statistician Skills**

Programming Languages and Tools:

|  |  |  |
| --- | --- | --- |
| Python (Anaconda dist.) | R | MATLAB |
| Minitab | STATA | Microsoft Excel |
| Tableau |  |  |

Data Analysis Skills + Methods:

|  |  |
| --- | --- |
| Multiple Linear Regression | Statistical Learning |
| Bootstrap (Cross-Validation) | Ensemble Methods (Random Forest, boosting) |
| Time Series Analysis | Model Selection Methods (AIC, Best-Subset) |
| Stochastic Processes (Markov Chains) | Support Vector Machines |
| Linear/Quadratic Discriminant Analysis | Convolutional Neural Networks |
| Dimension Reducing Methods (Lasso, Ridge) | Agent-Based Modeling |
| Bias-Variance Tradeoff | Unsupervised Clustering (KNN, K-means) |

Python Libraries:

|  |  |  |
| --- | --- | --- |
| Pandas | NumPy | PyTest (Unit-Testing) |
| Scikit-Learn | Matplotlib |  |

R Libraries:

|  |  |
| --- | --- |
| Tidyverse (Data Tidying) | Astsa (Time Series Analysis) |
| Gbm (Generalized Boosted Models) | Dplyr (Data Management) |
| GGPlot (Plotting and Graphing) | Boot (Bootstrap Resampling) |
| RandomForest (Random Forest Modeling) | Gam (Generalized Additive Modeling) |

**Programming Projects + Applications**

[**Personal Website and Portfolio**](https://andrew-morgan-website.herokuapp.com/) Continuous Project

<https://andrew-morgan-website.herokuapp.com/>

* Built with **Python** (Flask), **PostgreSQL**, **JavaScript**, **jQuery**, **AJAX**, **CSS**, **HTML**, **Bootstrap**, and **Heroku** (cloud platform hosting server) to work as a portfolio of projects.
* Primary components:
  + Describes who I am and what my areas of expertise and interests are (homepage, resume page; both from Navbar)
  + Exhibits compilation of my coding applications and projects (like Website Tracker and Sudoku Solver)
  + Exhibits compilation of my written posts, typically regarding data analysis and economic theory.
* Goal: Create an online location to showcase my projects and analyses, while motivating me to improve and continue learning different concepts.

[**Website Tracker Application**](https://andrew-morgan-website.herokuapp.com/website-tracker/) Maintaining Project

<https://andrew-morgan-website.herokuapp.com/website-tracker/>

* Application manages website’s content metadata, update notifications, bug reports, and wish lists.
* Bug reporting tool found through website’s Navbar for easy documentation of bugs.
* User authentication system to allow easy modification of reports and wishes.
* Built with **Python** (**Flask**), **PostgreSQL**, **JavaScript**, **HTML**, and **CSS**.

[**CraigVersity Application**](https://andrew-morgan-website.herokuapp.com/craigversity) Completed Project

<https://andrew-morgan-website.herokuapp.com/craigversity>

* Application designed like Craigslist where sellers and buyers can meet.
* Programming lead among group of 4 other classmates to develop prototype of our application.
* Built using **Flask**, **SQLite3**/**PostgreSQL**, **SQL**-**Alchemy**, **JavaScript**, **HTML**, **CSS**, **Bootstrap.**

**Programming Projects + Applications CONT.**

[**Sudoku Solver**](https://andrew-morgan-website.herokuapp.com/programming-repo/sudoku-solver) Completed Project

<https://andrew-morgan-website.herokuapp.com/programming-repo/sudoku-solver>

* Program that displays and solves N-by-N sudoku puzzles (limit on website to 16x16).
* **Searching** **heuristics** used to improve performance by more than 95%.
* User-Interface with pretty Sudoku Puzzle formatting and **AJAX** calls to generate and solve puzzles from user requests.
* Built using **Python**, **JavaScript**, **jQuery**, **AJAX**, **CSS**, **HTML**

[**Agent-Based Modeling**](https://andrew-morgan-website.herokuapp.com/agent-based-modeling/abm-home) Current Project

<https://andrew-morgan-website.herokuapp.com/agent-based-modeling>

* No content on Website yet. Should be up in 1-2 weeks.
* Agent-based modeling studies macro-level patterns produced by simulating individual agents interacting within the system.
* Skills needed include economics (utility theory, optimization), statistics (sampling and probability), computer science (Object-Oriented design and computational know-how).
* Python and JavaScript program simulating simple forest fire model (currently building).
* Data analysis of results from Schelling segregation model analyzing simulations’ data.

[**Academic Blog Post Management System**](https://andrew-morgan-website.herokuapp.com/my-posts/)Continuous Project

<https://andrew-morgan-website.herokuapp.com/my-posts/>

* A lightweight content management system for my academic blog posts on my website.
* A database will hold the written content and assets (like images, data, or graphs) and will correctly render posts user requests.
* Templates will be formed to allow consistent formatting across my posts.
* Content of academic blog posts is in following section.

**Written Academic-Styled and Blog-Styled Papers and Posts**

[**The Overview of the 2008 Housing Bubble and Aftermath**](https://andrew-morgan-website.herokuapp.com/my-posts/posts/2)

<https://andrew-morgan-website.herokuapp.com/my-posts/posts/2>

* Academic paper studying the 2008 housing crash and mania that preceded it.
* Explanation for the actions taken by investment banks that created a financial blackhole.

[**Study of the USA’s Increasing Human Capital Throughout the 20th Century**](https://andrew-morgan-website.herokuapp.com/my-posts/posts/1)

<https://andrew-morgan-website.herokuapp.com/my-posts/posts/1>

* Academic paper studying the USA’s increase in education throughout the 20th century.
* Analysis of the economic impacts resulting from the shift from physical capital to human capital.

**[Summary of Data Analysis of the Human Freedom Index](https://andrew-morgan-website.herokuapp.com/my-posts/posts/3)**

<https://andrew-morgan-website.herokuapp.com/my-posts/posts/3>

* Data Analysis of the Cato’s Human Freedom Index (HFI) performed as team of 5 classmates utilizing **R**.
* Objective was to use **statistical learning methods** to discover the most relevant variables/predictors.
* **Statistical** **learning** methods performed including regression (linear, Lasso/Ridge, KNN), classification (KNN, LDA/QDA), ensemble methods (random forests, bagging), bootstrapping (cross-validation).

[**Analysis of Education on Economic Metrics**](https://andrew-morgan-website.herokuapp.com/my-posts/collection/education-and-economics)

<https://andrew-morgan-website.herokuapp.com/my-posts/collection/education-and-economics>

* Ongoing collection of written posts relating to education and economic metrics.
* The collection of posts will combine economic theory with data analysis.
* Analysis will use both R and Python to analyze effects of education on various economic metrics (like wage, wealth, standard of living, location, happiness).

**Coursework**

Computer Science:

|  |  |
| --- | --- |
| Software Engineering | Artificial Intelligence |
| Computer Vision | Data Science |
| Software Quality Assurance | Database Management Systems |
| Data Structures | Algorithm Implementation |
| Systems Software | Operating Systems |
| Formal Methods in Computer Science | Discrete Structures |
| Web Application Design |  |

Statistics:

|  |  |
| --- | --- |
| Statistical Learning | Applied Time Series |
| Multiple Linear Regression | Mathematical Probability |
| Stochastic Processes | Mathematical Statistics |
| Principles of Data Science |  |

Economics:

|  |  |
| --- | --- |
| Seminar in Market Manias, Panics, Crashes | Intermediate Macroeconomics |
| Public Economics | Intermediate Microeconomics |
| Game Theory | Econometrics |