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Bradley M. Cardona

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Education

- **Allegheny College** — Meadville, PA
  B.S. Mathematics (GPA: 3.55) — *Aug 2019 - May 2023*
  - **Honors**: Cum Laude
  - **Selected Coursework**: Linear Algebra, Introduction to Real Analysis, Vector Calculus and Variables, Probability/Statistic Inferences I, Probability/Statistic Inferences II, Optimization and Approximation, Complex Variables

Certificates

- **Deep Learning Specialization (2023)**: Built neural network architectures such as Convolutional Neural Networks, Recurrent Neural Networks, LSTMs, and Transformers; tackled real-world cases such as speech recognition, music synthesis, chatbots, machine translation, and natural language processing.
- **Machine Learning Specialization (2023)**: Studied supervised learning, unsupervised learning, recommender systems, and reinforcement learning; gained practical skills to apply machine learning techniques.
- **Google Data Analytics Professional Certificate (2023)**: Developed an advanced understanding and proficiency of platforms for effective data analyses, including spreadsheets, SQL, R, and Tableau.

Internships

- **Allegheny College Mathematics Department** — Meadville, PA
  Undergraduate Researcher — *May 2022 - Jul 2022*
  - Conducted an extensive and rigorous examination of algebraic curves within the projective plane, with a particular focus on tacnodes—critical points where two or more curves share the same tangent line.
  - Demonstrated proficiency in solving and efficiently visualizing intricate high-dimensional polynomial equations through the utilization of Wolfram Mathematica and the Wolfram Language.
  - As part of a seminar series, showcased my work by delivering a comprehensive presentation of my findings to both peers and faculty members at Allegheny College.

Software Projects

- **Personal website**: www.bcardona.com (for additional information and projects)
- **Hot Dog Binary Classifier (**Blog Post**,** Website**)**:
  - Developed a binary classifier capable of testing whether an image falls within the 'hot dog' or 'not hot dog' class, inspired by an episode on HBO's Silicon Valley.
  - Performed transfer learning by utilizing a pre-trained ConvNeXt model, achieving an overall test accuracy of 95.5%.
  - Utilized: Python, Fast.AI, Hugging Face Spaces, Gradio, Jupyter, Git
- **Pathfinding Visualizer (**Website**,** GitHub**)**:
  - Developed an immersive JavaScript web application to visualize various search algorithms.
  - Implemented Depth-First Search, Breadth-First Search, A* Search, Greedy Best-First Search, and Dijkstra's algorithm.
  - Utilized: JavaScript, HTML, CSS, Git, GitHub
- **Sorting Visualizer (**Website**,** GitHub**)**:
  - Built an interactive JavaScript web application to visualize a range of sorting algorithms.
  - Implemented Bubble Sort, Heap Sort, Insertion Sort, Quick Sort, and Selection Sort.
  - Utilized: JavaScript, HTML, CSS, Git, GitHub
- **Deep Work Tracker (**GitHub**)**:
  - Developed a Python project to track and record focused work activities, known as "deep work," to improve my productivity.
  - Implemented a CSV file-based system for logging daily accomplishments and a Python script for generating visualizations and a daily/monthly summary.
  - Utilized: Python, Pandas, Matplotlib, Seaborn, Git, GitHub

Skills

- **Languages**: Python, R, SQL, JavaScript, LaTeX, HTML, CSS
- **Libraries/Frameworks**: TensorFlow, Microsoft Suite, Power BI, Tableau, GitHub, Git, NumPy, Matplotlib