

# Aren Carpenter

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## DATA SCIENTIST

Data science professional with experience in data acquisition and modeling, statistical analysis, machine learning, deep learning, image classification, and NLP. Analytic, outcome-based thinker bringing strong interpersonal skills to projects with a diverse set of clients, delivering individualized outcomes. Leader with strong skills in project management and research, developed through a background in biology and theater, to support the healthcare industry drive improved pathological outcomes with machine learning.

### TECHNICAL SKILLS

Python, Object Oriented Programming (OOP), data visualization with Matplotlib and Seaborn, SQL, scikit-learn, statsmodels, API usage, NumPy, Pandas, JupyterLab, Keras, Tensorflow, custom CNNs with AWS Sagemaker/S3, Microsoft Office (Excel, Word, PowerPoint), Docker, Anaconda

### TECHNICAL PROJECTS

#### Detecting Pneumonia with Image Classification - [Github](#)

*Used Deep Learning CNN to detect pneumonia from patient chest X-rays*

- Collected and cleaned 5,000 X-rays from medical articles
- Performed EDA, such as eigenimages and mean images, to contrast patient X-rays and build domain knowledge
- Iteratively developed model using Keras framework to achieve 95% accuracy and 97% recall with a 8-layer neural network

#### Predicting Rehospitalization for Diabetic Patients - [Github](#)

*Predicted the need for rehospitalization based on patient test results and demographics*

- Utilized data from 100,000 inpatient visits by diabetic patients during 10-year span
- Performed hypothesis testing and EDA to understand diabetic patients
- Developed multiple logistic regression model in sklearn for multi-class classification
- Cultivated recommendations for testing to reduce rehospitalization, centering on long-term HbA1c blood sugar test

#### Understanding the Rural Uninsured - [Github](#)

*Enriched understanding of the rural versus urban divide in health insurance coverage and related implications*

- Concatenated four county government datasets using Pandas to capture demographic nuances
- Performed rigorous hypothesis testing with statsmodels to illuminate differences in county demographics
- Constructed multiple linear regression with polynomial features in sklearn
- Developed recommendations for addressing rural uninsured rates through local government income inequality programs

### EMPLOYMENT HISTORY

Flight Director, **Kinetic Light; Disability Dance Works**, New York, NY 03/2020 - 06/2020

- Supervised rigging and flight for precision performer flying, ensuring safety for groundbreaking dance production
- Merged artistry and technology by collaborating on creative decisions with choreographer

Theatre Technician, **Freelance; Independent Contractor**, New York, NY 05/2019 - 06/2020

- Executed 40+ projects for 12 off-Broadway theaters; served as lighting designer, programmer, technician, and master carpenter
- As programmer, oversaw lighting network architecture with LED fixtures and DMX protocols, removing barriers to production

Production Manager and Technical Director, **ArKtype**, New York, NY 09/2019 - 06/2020

- Managed two National Tours, ensuring smooth transitions between locations and successful performances
- Supervised crew and technical load-ins in a high-stakes, dynamic environment

Production Apprentice, **New York Live Arts**, New York, NY 09/2018 - 05/2019

- Served in a variety of roles, including lighting programmer, audio engineer, stage manager, deck crew, and production assistant for 20+ shows, in a fast-paced, high-energy setting
- Collaborated with new clients weekly, implementing individual designs; proactively identified and addressed potential issues

### EDUCATION AND PROFESSIONAL DEVELOPMENT

**Flatiron School**, New York, NY 06/2020 - 10/2020

Immersive Data Science Bootcamp program

**Theater Workshops and Courses:** ETC LearningStage | EOS Family Software: Advanced Programming  
Expert Topics: EOS Color Tools | Expert Topics: EOS Family Virtual Media Servers

**Davidson College**, Charlotte, NC 05/2018  
B.S. Biology