Dan Billmann

Setauket, NY 11733

Website dan.billmann.13@gmail.com linkedin.com/in/daniel-billmann github.com/billmann13

Education

Stony Brook University **Aug. 2021 – Apr. 2023**
M.S. (Thesis) in Computer Science *Stony Brook, NY*

University of Cincinnati **Aug. 2012 – Apr. 2017**
B.B.A in Management Information Systems *Cincinnati, OH*

Thesis

Non-Rigid Registration with Deep Learning and Conformal Harmonic Maps
C++, Python, Bash, Windows Batch
Used a facial detection method to identify and set the boundary for a conformal harmonic map to help register before and after images In dental applications, this can help identify non-linear growth in pediatric patients.

Experience

VideaHealth **May 2022 – Aug. 2022**
Machine Learning Intern *Boston, MA*

- Prepared segmentation model medical device evaluating dental X-Ray images for FDA submission.
- Researched cluster-based hyperparameter search on AWS EC2 instances to better control model training.
- Compared validation performance between 3 lightweight CNN encoders to study total runtime.
- Introduced the ML team to configuration-driven code to improve code re-usability.

Bloomberg LP **Jun. 2017 – Jun. 2021**
Data Engineer *Princeton, NJ*

- Trained an NLP classifier using a bag-of-words encoder on 5 document types to save $250,000 / year on headcount.
- Authored and maintained proprietary Python package that identified millions of missing data points.
- Redesigned a pipeline to use the Factory pattern which reduced runtime from 12 to 2 hours, doubled its product applicability, and reduced maintenance by half.

Projects

Pylateral Facial Symmetry | *Python, MediaPipe, Numpy* **Fall 2022**

Implanted a $\mathbb{R}^2$ plane into a $\mathbb{R}^3$ face manifold to predict bilateral facial symmetry. Trained the model on the left half (L) of the face and used the right half (R) as the validation set. I used gradient descent with momentum to optimize the objective cost function as the difference between L_i and R_i.

Machine Learning Algorithm Analysis | *Python, Scikit-Learn* **Fall 2021**

Analyzed the differences between machine learning algorithms (Logistic Regression, Decision Tree, and LinearSVM) by running each algorithm on a single dataset. Then ran the same set of algorithms on additional datasets to discover additional differences and tradeoffs between algorithms.

Technical Skills

Languages: Python, C++, BASH, Julia, SQL
Developer Tools: VS Code, JIRA, AWS, vim, Docker
Technologies/Frameworks: GitHub, MeshLab, Spark, Hadoop, Splunk, OpenCV, PyTorch, Numpy, Pandas, Scikit-Learn

Relevant Coursework

- Machine Learning
- Computer Vision
- Discrete Differential Geometry
- Data Structures & Algorithms
- Big Data Analysis
- Probability & Statistics

Leadership / Extracurricular

Bloomberg LP **Nov. 2017 – Jun. 2021**
Training Leader

- Trained incoming teammates, analysts from other departments, and management on topics ranging from process analysis to quality check design. Awarded department Trainer of the Year in 2018.
- Mentored a co-op student for 6 months and prepared him to interview for and accept a full-time role with the team.