Nicholas Sean Escanilla

Graduate Student

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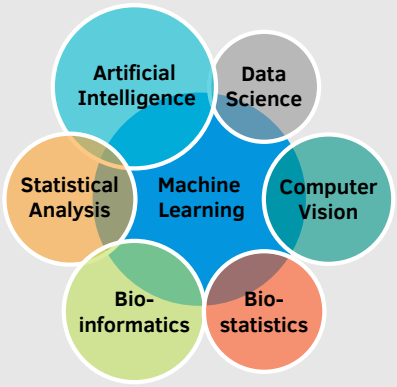
Skills

Overview



Programming

$0\ LOC \longrightarrow 5000\ LOC$

Python • R

Java • Matlab • HTML

SQL • LaTeX

Projects

RFEST - A novel recursive feature elimination algorithm for highly non-linear data

Web Scraping - Implemented manual wrappers to extract structured data from the web with BeautifulSoup

CS*839 - A data science project involving: information extraction, crawling web pages, entity matching, integrating and performing analyses

CS*766 - A lane detection project aimed for adverse conditions

Education

2016 - 2018 **M.S., Computer Science** — University of Wisconsin-Madison

2013 - 2016 **B.A., Mathematics** — Lake Forest College

Research

2016 - 2018 **Graduate Research Assistant** — University of Wisconsin-Madison

Thesis: Recursive Feature Elimination by Sensitivity Testing

- Empirically proved the effectiveness of a novel feature selection algorithm with correlation immune functions
- Generated synthetic data based on correlation immune functions of orders two, four, five, and six
- Implemented logistic regression, support vector machines, and feedforward neural networks
- Applied data manipulation techniques, local optimum search heuristics (e.g. hill-climbing, simulated annealing), and cross-validation
- Submitted a novel feature selection algorithm to the 2018 International Conference for Machine Learning (ICML)
- **Tools**: R, Python, Matlab, OSX Terminal, Unix Shell

Awards: Advanced Opportunity Fellowship (2016-2017), Computation and Informatics in Biology and Medicine (CIBM) Fellowship (2017-2018)

Publications

Escanilla, N. A. (2017). *A Comparative Analysis of Feature Selection Techniques for a Family of Nonlinear Target Functions and Breast Cancer Diagnoses* (Master's thesis, University of Wisconsin-Madison, 2017) (pp. 1-55). Madison.

Escanilla, N. (2015). *Finding gene-disease associations when hidden by gene-gene interactions*. 2015 Integrated Biological Sciences Summer Research Program Journal (pp. 79-86)

Experience

May 2015 - Aug 2015 **IBS-SRP Summer Researcher** — University of Wisconsin-Madison

- Accepted into the Integrated Biological Sciences Summer Research Program (IBS-SRP)
- Rigorous independent research on general machine learning algorithms
- Designed a novel feature selection algorithm for use in bioinformatics
- Applied novel algorithm on germline genomic data to improve breast cancer diagnoses
- **Tools**: R

Jun 2014 - Jul 2014 **SPQS Summer Researcher** — Harvard T.H. Chan School of Public Health

- Participated in the Summer Program for Quantitative Sciences (SPQS)
- Successful completion of comprehensive introductory courses in biostatistics and epidemiology
- Implemented summary statistics and logistic regression models
- Analyzed the relationship of genetic and environmental factors for ovarian cancer
- Delivered a presentation of findings at the "Pipelines into Biostatistics" symposium
- **Tools**: R