

# DANTE GOSS II

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## PROFILE

Kinesiology/Sports Medicine PhD Student at the University of Virginia working in the Exercise and Sports Injury Lab.

Research interests include wearable sensors, gait biomarkers, chronic musculoskeletal diseases, and aging.

## SKILLS

- Programming: (R, MATLAB, Python, Excel, SQL)
- Data Collection: (Motion capture, wearable IMU's, metabolic expenditure, load sensing insoles)
- Research: (Descriptive & inferential statistics, machine learning, research methods, study design, project management)
- Communication: (Oral presentations, written research)

## RELEVANT COURSES

- Machine Learning & Data Mining
- Generalized Linear Models
- Statistical Modeling
- Computation & Modeling in Biomedical Engineering
- R in Psychology
- Applied Causal Inference
- Quantitative Methods I & II
- Advanced Exercise Physiology
- Impact Biomechanics
- Python for Everyone Coursera Course

## WORK EXPERIENCE

### Graduate Research Assistant

University of Virginia 2021 - Present

- Successfully wrote and secured a research grant for an innovative project aimed at measuring energy expenditure and joint loading in older adults compared to younger adults while walking (Data collection ongoing).
- Conducted a systematic review of step-rate based gait retraining in runners.
  - Presented the research findings at multiple national conferences & authored a manuscript detailing results.
- Performed human subject testing in multiple studies using optical motion capture, indirect calorimetry, inertial measurement units, force plates, dynamometers and ultrasound.
  - Oversaw subject scheduling & maintained records.
- Used MATLAB to create multiple automatic data processing scripts for accelerometer data collected across multiple research sites.

### Data Analyst & Research Associate

Legacy Communication & Research 2019 - Present

- Designed comprehensive surveys to gauge perceptions of company culture, diversity, equity, and inclusion (DEI) initiatives, and workshops for a large consulting client.
- Managed the entire data lifecycle including data storage, cleaning, and analysis using Excel and R.
- Generated insights and created data visualizations for use in a series of reports used at different levels of the client organization.

## EDUCATION

### Doctor of Philosophy – Kinesiology & Exercise Science

University of Virginia

Expected Graduation May 2026

### Bachelor of Science in Kinesiology & Exercise Science

Indiana University – Purdue University Indianapolis

May 2021

## PROJECT SAMPLES

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### Machine Learning & Data Mining Final Project

April 2023 - May 2023

- Employed R for text analysis, sentiment analysis, and data mining on a large-scale sample of drug reviews to predict patient satisfaction scores.
- Used exploratory graph analysis and applied various machine learning models in a linear workflow beginning with ordinary least squares regression and advancing to a stacked ensemble model of eight tuned machine learning models, to enhance predictive accuracy.

### Statistical Modeling Final Project

November 2022 – December 2022

- Conducted an exploratory study on discriminating health status through gait analysis.
- Utilized R for data mining and extraction of meaningful metrics from ground reaction force data of individuals with Parkinson's disease and healthy controls.
- Developed logistic regression-based classification models using these metrics to identify health status.
- Performed feature analysis to optimize predictive power.

### Computation & Modeling in Biomedical Engineering Final Project

November 2022 – December 2022

- Acquired a large-scale dataset from the osteoarthritis initiative, containing X-rays of arthritic knees and a numeric measure of disease severity.
- Utilized MATLAB to manipulate and preprocess the raw images and applied supervised transfer learning with Googlenet model for disease severity classification.
- Successfully communicated the methods, findings, and clinical significance of the research to a non-clinical audience.

### R in Psychology Final Project

April 2022

- Collected ground reaction force data from shoe-worn sensors during walking trials, while systematically manipulating gait speed and step-rate.
- Used R to import, clean, and analyze the collected data, creating custom functions to extract temporospatial markers.
- Conducted statistical analysis to measure differences in loading across conditions and effectively presented the results using tables and data visualizations, along with insightful clinical applications.