TAYLOR DUNN

I am a data scientist and statistician with five years of experience in the pharmaceutical industry, and an academic background in computational physics. I enjoy working in collaborative environments on hard problems with modern technologies and methods.

EDUCATION

2016 | 2014

M.Sc., Physics

Dalhousie University — Halifax, NS

- Thesis: Image Segmentation and Modelling of Host-Pathogen Dynamics of Salmonella.[1]

2014 | 2009

B.Sc., Physics, Honours (minor Mathematics)

University of Prince Edward Island — Charlottetown, PE

- Thesis: Studying Polymer Translocation with Dissipative Particle Dynamics and Monte Carlo Simulations[2]

EXPERIENCE

current | 2017

Biostatistician

Ardea Outcomes — Halifax, NS

- Worked on global clinical trials and patient-centered research across multiple disease areas.
- Assisted in study design, including the development of study protocols, statistical analysis plans, and data management plans.
- Performed data collection, analysis, reporting, and interpretation. Aided in database maintenance and monitoring.
- Conducted research in patient-centric outcomes, resulting in several peer-reviewed publications and presentations for scientific meetings and industry clients.
- Led internal project management to ensure tasks are completed according to timelines. Communicated professionally with external stakeholders throughout projects.
- Developed internal R software for effective, reproducible, and well-documented workflows.

2015 | 2014

Teaching Assistant

Dalhousie University, Department of Physics — Halifax, NS

- Course: Introduction to Numerical Programming.
- Aided undergraduate Physics students in exploring and modelling physical systems in Python.
- Ran weekly tutorial sessions and marked assignments.
- Gave lectures when the professor was absent.

CONTACT

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tdunn.ca
GitHub
LinkedIn

LANGUAGE SKILLS

- R
- Python
- Bash
- SQL
- C++
- C

Last updated on 2022-01-12.
Source code is available here.

2014 | 2011

Undergraduate Researcher

University of Prince Edward Island — Charlottetown, PE

- Worked in a computational physics lab under supervision of a senior faculty member.
- Developed software in C and C++ to simulate molecules and perform data analysis.
- Presented results in various settings and formats (posters, presentations, papers).

2014 | 2011

Help Centre Tutor

University of Prince Edward Island — Charlottetown, PE

- Ran weekly tutorial sessions where students would come for assistance in various subjects (physics, calculus, statistics, etc.).

2012 | 2010

Laboratory/Teaching Assistant

University of Prince Edward Island — Charlottetown, PE

- Assisted with student instruction, equipment setup and marking of undergraduate physics labs.

SELECTED DATA SCIENCE PROJECTS

2022

canadacovid[3]

- An R package to pull Canadian COVID-19 data from a public API.

2021

gasr[4]

- An R package for simulating and analyzing goal attainment scaling data.

2020

dunnr[5]

- A personal R package of plotting templates and functions that I commonly use.

SELECTED DATA SCIENCE WRITING

2022

Canada COVID-19 data in R: creating a package[6]

tdunn.ca

- Detailed my steps and thought process in developing an R package that pulls Canadian COVID-19 data from a public API.

2020

Ordinal regression in R[7]

tdunn.ca

- A theoretical and applied walkthrough of conducting ordinal regression in R, with both frequentist and Bayesian approaches.

PUBLICATIONS

2022

Patterns of Symptom Tracking by Caregivers and Patients with Dementia and Mild Cognitive Impairment: Cross-Sectional Study[8]

Journal of Medical Internet Research

- Applied a machine learning algorithm to online user profiles, completed by caregivers of people with dementia, to predict disease severity. Analyzed the characteristic symptoms at different stages of disease.

2020

Use of Patient-Reported Symptoms from an Online Symptom Tracking Tool for Dementia Severity Staging: Development and Validation of a Machine Learning Approach[9]

Journal of Medical Internet Research

- Trained and evaluated various machine learning algorithms to predict patient dementia stage based on symptoms reported in an online app.

2019

The Symptoms Targeted for Monitoring in a Web-Based Tracking Tool by Caregivers of People With Dementia and Agitation: Cross-Sectional Study[10]

Journal of Medical Internet Research

- Analyzed and characterized the symptom of agitation in dementia from web-based reports provided by caregivers.

2014

Evaluating the Applicability of the Fokker-Planck Equation in Polymer Translocation: A Brownian Dynamics Study[11]

Journal of Chemical Physics

- Through computer simulations, provided empirical evidence of the validity of the Fokker-Planck formalism for polymer translocation dynamics.

SELECTED PRESENTATIONS

2021

What is the minimum number of goals required per subject for goal attainment scaling trials: a simulation study.[12]

International Society for Quality of Life Research Conference

Remote

- Source code available on GitHub[13].

2021 **The Goal Attainment Scaling Method is Robust to Violations of Normality in Goal Scales: A Simulation Study.**[14]
The Professional Society for Health Economics and Outcomes Research Europe Conference
Remote

• Source code available on GitHub[15].

2021 **Beyond Patient Journals - Using GAS to Capture the Patient Voice**[16]
WorkCast Webinar
Remote

2021 **Using Goal Attainment Scaling to Capture the Patient Voice**[17]
Xtalks Webinar
Remote

2020 **Evaluating a symptom tracking mobile app for use in people with dementia**[18]
Alzheimer Europe Conference
Remote

2020 **A review of goal attainment scaling in clinical trials**[19]
International Society for Quality of Life Research Conference
Remote

2019 **Individualized Symptom Tracking with SymptomGuide® allows for Clinically Meaningful Interpretation of MMSE Score Changes in a Dementia Drug Trial**[20]
Alzheimer's Association International Conference
Los Angeles

2019 **A Frailty Index Based on Routinely Collected Laboratory Safety Data Predicts Dropout in Alzheimer Disease Clinical Trial Settings**[21]
Alzheimer's Association International Conference
Los Angeles

2019 **Transitioning a patient-centred dementia symptom tracking tool from the web to mobile**[22]
Alzheimer's Association International Conference
Los Angeles

2019 **Higher baseline frailty, identified by routinely collected laboratory safety data, is associated with greater cognitive decline in clinical trials of anti-dementia drugs.**[23]
Clinical Trials on Alzheimer's Disease Conference
San Diego

2019 **Development of a machine learning algorithm to classify dementia stage based on reported dementia symptoms.**[24]
Clinical Trials on Alzheimer's Disease Conference
San Diego

2019 **Exploring the patterns of cognitive symptoms tracked by caregivers and patients in online symptom profiles.**[25]
Clinical Trials on Alzheimer's Disease Conference
San Diego

2019 **Development and Validation of a Patient-Centered Outcome Measure for use in Dementia Drug Trials**[26]
The Professional Society for Health Economics and Outcomes Research Conference
New Orleans

2019 **A Semi-Standardized Symptom Menu to Facilitate Goal Attainment Scaling in Dementia Drug Trials: Comparison with Traditional Approaches**[27]
The Professional Society for Health Economics and Outcomes Research Europe Conference
Copenhagen

2018 **A Frailty Index Based on Routinely Collected Laboratory Safety Data Predicts Adverse Events in a Sex-Specific Manner in Clinical Trials**[28]
Alzheimer's Association International Conference
Chicago

2018 **Comparison of a Frailty Index Tool based on Clinical Assessment with one based on Routinely-Collected Laboratory Safety Data: Links Between Frailty, Adverse Events, and Function in the Setting of an Alzheimer's Disease Clinical Trial**[29]
Alzheimer's Association International Conference
Chicago

2018 **Goal Attainment Scaling scores, without defined attainment levels, were associated with standardized measures in people with vascular and mixed dementia in the VASPECT trial**[30]
Clinical Trials on Alzheimer's Disease Conference
Barcelona

2017 **A procedure to create a frailty index using routinely-collected laboratory and clinical safety data from an Alzheimer disease clinical trial**[31]
Alzheimer's Association International Conference
London, UK

2017 **Symptoms targeted for treatment by caregivers of people with dementia and agitation**[32]
US Psych Congress
New Orleans

2016 **Modelling Host-Pathogen Dynamics of Salmonella.**[33]
The New Bacteriology Conference
Royal Society, London, UK

2015 **Modelling Growth in Host-Pathogen Dynamics.**[34]
Chemical Biophysics Symposium
University of Toronto

2014 **Studying polymer translocation with dissipative particle dynamics.**
Atlantic Undergraduate Research and Astronomy Conference
Dalhousie University

2013 **Polymer translocation dynamics through a nanopore.**
Atlantic Undergraduate Research and Astronomy Conference
University of Moncton

2013 **Studying polymer translocation dynamics with dissipative particle dynamics.**
UPEI Science Undergraduate Research Conference
UPEI

2012 **Polymer translocation dynamics through a nanopore.**
UPEI Science Undergraduate Research Conference
UPEI

2011 **Conformational correlation times for a tethered polymer.**
UPEI Science Undergraduate Research Conference
UPEI

HONOURS AND AWARDS

2016 | 2014 **Nova Scotia Graduate Scholarship**

2014 | 2012 **Undergraduate Student Research Award (NSERC)**

2013 **The Robert Haines Memorial Science Award of Merit**

2013 **ACEmat Award in Computational Modelling of Materials**

2012 **City of Charlottetown International Ambassador Award**

2011 **Physics Department Prize in Modern Physics**

2010 **Global Issues Excellence in Writing Competition (winner)**

2009 **University of Prince Edward Island Full Tuition Scholarship**

2009 **High School Chemistry Prize (BioVectra)**

LINKS

1. https://dalspace.library.dal.ca/handle/10222/72174
2. https://github.com/taylordunn/tdunn-cv/raw/main/docs/upei/thesis/thesis.pdf
3. https://taylordunn.github.io/canadacovid/

4. https://github.com/taylordunn/gasr
5. https://github.com/taylordunn/dunnr
6. https://tdunn.ca/posts/2021-12-30-canada-covid-19-data-in-r-creating-a-package/
7. https://tdunn.ca/posts/2020-03-17-ordinal-regression-in-r-part-2/
8. https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/dunn-2022-jmir.pdf
9. https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/shehzad-2020-jmir.pdf
10. https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/rockwood-2019-jmir.pdf
11. https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/polson-2014-chemphys.pdf
12. https://isoqol2021-isoqol.ipostersessions.com/default.aspx?s=59-C4-73-2F-1E-C3-15-83-6C-72-85-0D-6A-A9-A9-90
13. https://github.com/taylordunn/isoqol2021-gas-sim
14. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ispor-europe-2021/ispor-europe-2021-gas-sim.pdf
15. https://github.com/taylordunn/isoqol2021-gas-sim
16. https://www.workcast.com/register?cpak=9352846098487980
17. https://xtalks.com/webinars/using-goal-attainment-scaling-to-capture-the-patient-voice/
18. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/alzheimer-europe-2020/alzheimer-europe-2020-dementia.pdf
19. https://isoqol27-isoqol.ipostersessions.com/Default.aspx?s=9A-22-6F-5E-39-E6-A2-D9-18-6F-79-DA-30-A6-6E-CC
20. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/aaic-2019/aaic-2019-dementia.pdf
21. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/aaic-2019/aaic-2019-frailty-camd.pdf
22. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/aaic-2019/aaic-2019-symptomguide.pdf
23. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ctad-2019/ctad-2019-frailty.pdf
24. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ctad-2019/ctad-2019-staging.pdf
25. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ctad-2019/ctad-2019-symptoms.pdf
26. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ispor-2019/ispor-2019-gas.pdf
27. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ispor-europe-2019/ispor-europe-2019-gas.pdf
28. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/aaic-2018/aaic-2018-frailty-camd.pdf
29. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/aaic-2018/aaic-2018-frailty-vista.pdf
30. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ctad-2018/ctad-2018-gas.pdf
31. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/aaic-2017/aaic-2017-frailty.pdf
32. https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/us-psych-congress-2017/us-psych-congress-2017.pdf
33. https://github.com/taylordunn/tdunn-cv/raw/main/docs/dalhousie/new-bacteriology-2016/new-bacteriology-2016.pdf
34. https://github.com/taylordunn/tdunn-cv/raw/main/docs/dalhousie/cbp-2015/cbp-2015.pdf