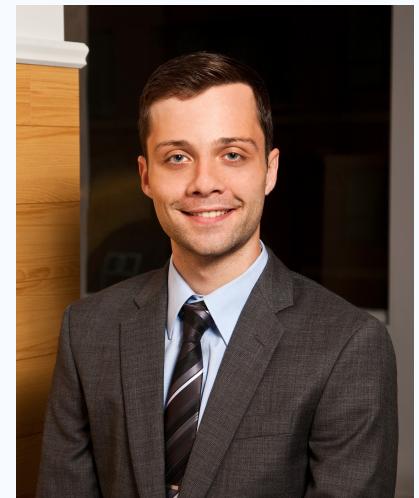


# TAYLOR DUNN

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*.<sup>1</sup>
- **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<sup>2</sup>

2014  
|  
2009

## EXPERIENCE

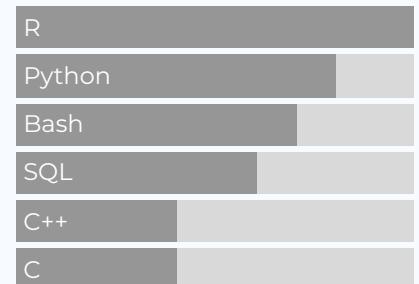
current  
|  
2017

- **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.

## CONTACT

- ✉ t.dunn19@gmail.com
- 🔗 tdunn.ca
- 🔗 GitHub
- 🔗 LinkedIn

## LANGUAGE SKILLS



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.

2022

## ↗ SELECTED DATA SCIENCE PROJECTS

2022

- **Canadian COVID-19 Dashboard<sup>3</sup>**

- A dashboard built in Shiny that reports and visualizes the latest COVID-19 numbers in Canada.

2022

- **canadacovid<sup>4</sup>**

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

2021

- **gasr<sup>5</sup>**

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

2020

- **dunnr<sup>6</sup>**

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

2022

## ✎ SELECTED DATA SCIENCE WRITING

- **Canada COVID-19 data in R: creating a package<sup>7</sup>**

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<sup>8</sup>**

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<sup>9</sup>**

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<sup>10</sup>**

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<sup>11</sup>**

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<sup>12</sup>**

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.<sup>13</sup>  
International Society for Quality of Life Research Conference  
 Remote
  - Source code available on GitHub<sup>14</sup>.

2021

- The Goal Attainment Scaling Method is Robust to Violations of Normality in Goal Scales: A Simulation Study.<sup>15</sup>  
The Professional Society for Health Economics and Outcomes Research Europe Conference  
 Remote
  - Source code available on GitHub<sup>16</sup>.

2021

- Beyond Patient Journals - Using GAS to Capture the Patient Voice<sup>17</sup>  
WorkCast Webinar  
 Remote

2021

- Using Goal Attainment Scaling to Capture the Patient Voice<sup>18</sup>  
Xtalks Webinar  
 Remote

2019

- Higher baseline frailty, identified by routinely collected laboratory safety data, is associated with greater cognitive decline in clinical trials of anti-dementia drugs.<sup>19</sup>  
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.<sup>20</sup>  
Clinical Trials on Alzheimer's Disease Conference  
 San Diego

2016

- Modelling Host-Pathogen Dynamics of Salmonella.<sup>21</sup>  
The New Bacteriology Conference  
 Royal Society, London, UK



## HONOURS AND AWARDS

2016

- Nova Scotia Graduate Scholarship

| 2014

- Undergraduate Student Research Award (NSERC)

2014

| 2012



## 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://taylor-dunn.shinyapps.io/canadacovidshiny/>

- 4: <https://taylordunn.github.io/canadacovid/>
- 5: <https://github.com/taylordunn/gasr>
- 6: <https://github.com/taylordunn/dunnr>
- 7: <https://tdunn.ca/posts/2021-12-30-canada-covid-19-data-in-r-creating-a-package/>
- 8: <https://tdunn.ca/posts/2020-03-17-ordinal-regression-in-r-part-2/>
- 9: <https://doi.org/10.2196/29219>
- 10: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/shehzad-2020-jmir.pdf>
- 11: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/rockwood-2019-jmir.pdf>
- 12: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/papers/polson-2014-chemphys.pdf>
- 13: <https://isoqol2021-isoqol.ipostersessions.com/default.aspx?s=59-C4-73-2F-1E-C3-15-83-6C-72-85-0D-6A-A9-A9-90>
- 14: <https://github.com/taylordunn/isoqol2021-gas-sim>
- 15: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/isporeurope-2021/isporeurope-2021-gas-sim.pdf>
- 16: <https://github.com/taylordunn/isporeurope2021-gas-sim>
- 17: <https://www.workcast.com/register?cpak=9352846098487980>
- 18: <https://xtalks.com/webinars/using-goal-attainment-scaling-to-capture-the-patient-voice/>
- 19: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ctad-2019/ctad-2019-frailty.pdf>
- 20: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/ardea/ctad-2019/ctad-2019-staging.pdf>
- 21: <https://github.com/taylordunn/tdunn-cv/raw/main/docs/dalhousie/new-bacteriology-2016/hew-bacteriology-2016.pdf>