


# JOHANN DRAYNE

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## EXPERIENCE

**Research Data Analyst**  September 2021 – July 2024  
**Folk Lab @ Stewart Blusson Quantum Matter Institute**  Vancouver, Canada

- Co-developed updated data collection processes using **IGOR**, enhancing instrument communication and data management. Actively contributed to a large codebase through **Git** version control. Created a custom **Python** parser to visualise function dependencies in the **IGOR** repository, facilitating onboarding for new team members.
- Leveraged **Python** for data preprocessing and analysis, including **downsampling** and **outlier removal** due to the 10GB of nightly data, streamlining the analysis process. Employed **simultaneous fitting** techniques to validate data against theoretical models.
- Consistent execution in high-stakes device fabrication within a cleanroom, managing gas systems, cryogenics, and electrical components with precision under pressure.
- Mentored undergraduate and graduate students in data analysis techniques and instrument operation, fostering independence and enhancing lab productivity.
- Presented research findings at international conferences, including Quantropy 2022, 2024, and March Meeting in Las Vegas 2023, communicating complex concepts to diverse audiences.

**Research Data Analyst**  January 2021 – August 2021  
**Weber Lab @ BC Children’s Hospital Research Institute**  Vancouver, Canada

- Developed a preprocessing pipeline in **Bash** for fMRI brain scans, enabling streamlined data handling. Utilised **R** for data cleaning and modelling, employing **linear mixed effects** models to analyse changes in **fractal dimension** across subject categories. Repository: WeberLab/LRTC\_PLOSCComplex. Published paper: PLOS Complex systems.

**R&D Engineer & Project Lead**  April 2020 – December 2020  
**Jans Composites**  Antrim, Northern Ireland

- Lead the end-to-end development of a touchless hand washing station, delivering a market-ready product through R&D, strategic supplier sourcing, efficient production management, targeted sales and marketing efforts.

## DATA PROJECTS

- **Web scraped** a liquor store website, performing **EDA** and **feature engineering** such as using **NLP** to **cluster** the drinks into flavour profiles. Used **regression** and **classification** models (**gradient boost** and **random forest**) to predict a drink rating. Used evaluation metrics; **confusion matrix**, **ROC curve** and **learning curve** to gain insight into model performance. johann997/BCL\_WebScape
- **Dash app** that takes .DXF files and computes quantum properties to streamline device design. johann997/2deg\_yodels
- Scraped UBC .pdf financial reports and visualised in **Tableau** dashboard. johann997/UBC-Employee-Salary
- Scraped Berlin .xlsx crime reports, .geojson and visualised in **Tableau** dashboard. johann997/Berlin\_Mauerweg
- Utilised a water level sensor and **Arduino Uno WiFi** to transmit sensor data to a **PostgreSQL** database. I used **SQL** in **Grafana** to visualise the data for real-time and remote monitoring.
- Used a **regression model** on Facebook marketplace data to determine and visualise a competitive price for a used car.

## EDUCATION

**University of British Columbia** **M.Sc. Physics**  May 2022 – July 2024  
**University of British Columbia** **B.Sc. Honours Physics**  September 2017 – May 2022

## SKILLS

Languages	Python, SQL, Bash, R, MATLAB, Arduino, IGOR, PHP, HTML, C
Technologies	Tableau, git, conda, Jupyter, Excel, $\text{\LaTeX}$ , Docker
Libraries	scikit-learn, pandas, plotly, dash
Core	Collaboration, Problem Solving, Adaptability, Storytelling, Initiative, Enthusiasm

## AWARDS

International Tuition Award	2022, 2023
Dean’s Honour List	2018, 2019, 2021, 2022
Rosemary Stewart and Ioan James Scholarship	2022

## RELEVANT COURSES

- IBM Data Science (Coursera)
- Tableau for Data Scientists (LinkedIn)