


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, \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)