

PETR BARANOVSKIY

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CORE SKILLS

Statistics and Research

- Inferential statistics: linear regression, A/B testing, dependent and independent t-tests, logistic regression, robust statistical methods, etc. Applying non-parametric tests to deal with non-standard situations such as small samples, Likert scale data, and categorical data.
- Time series analysis and forecasting, including TS decomposition, detrending, seasonal adjustment.
- Conducting surveys: choosing survey methodology, creating questionnaires, gathering data, coding and processing survey data, and writing up the conclusions. Online tools: LimeSurvey, or creating custom-made survey apps with *Shiny* if data privacy is a major concern.
- Qualitative research: NVivo, conducting focus groups and research interviews, literature reviews.

Data Visualization and Reporting

- Making fully interactive data dashboards and visualizations with *Shiny*, *plotly*, and *flexdashboard*. Creating reproducible and self-updating reports with *R Markdown*. Deploying *Shiny* apps.
- Making publication-quality plots of any complexity with *ggplot2* and other graphic R packages.
- Creating static and interactive maps with *Leaflet*, *plotly*, *tmap*, and *OpenStreetMap* R packages.
- Presenting findings to public servants, industry representatives, and other non-specialist audiences.
- Extensive experience writing for academic, government, and business audiences.

SQL, Databases, and Data Mining

- PostgreSQL and MariaDB/MySQL: setting up and administrating databases, integrating with R for data processing using *DBI*, *RPostgres*, *RMariaDB*, and *dbplyr*; connection management with *pool*; creating web UIs for databases with *Shiny*. Database administration with DBeaver.
- Writing SQL queries to read from and write to databases, alter and update tables. Using parameterized queries to work with databases from inside R (including dynamically updating parameters with *Shiny*).
- Writing R code that auto-generates SQL queries based on the user input in *Shiny* dashboards.
- Web scraping through Web APIs, JSONs, and *rvest*; text mining; mining Twitter and Google search trends data, reading all known tabular formats into R, automated data retrieval from Statistics Canada.

GIS and Spatial Data

- Processing spatial data with *sf*, *sp*, and *raster*.
- Spatial data analysis: computing centroids, buffers, hulls, areas, bounding boxes, distances between features, spatial feature densities, determining relationships (e.g. intersections) between layers, etc.
- Spatial statistics: Poisson models and quadrat tests with *spatstat*, spatial cluster detection.

Other Skills

- R package development: author and maintainer of [ggwebthemes](#) R package (*ggplot2* themes for blogs).
- Linux, including Ubuntu/Debian server set up and administration. Version control with Git.
- Web development: building dynamic websites with WordPress, static web pages with Hugo and *blogdown*; working knowledge of HTML and CSS.
- SPSS, LaTeX, MS Excel, MS Word, MS PowerPoint, other MS Office and LibreOffice apps.
- Ability to be part of a team and extensive experience in working without supervision.

EXPERIENCE

R Programmer and Data Analyst | Freelance & casual projects | September 2020 – present

- **For VGeo.ca:** Developing a UI app for PostgreSQL database with R Shiny in order to enable remote reading from, writing to, and editing of a large-scale relational database using a simple and intuitive web interface. Development server system administration, writing and maintaining system and user-specific documentation, maintaining relevant GitHub repositories.
- **For a private client in Saskatoon:** Developing, testing, and training several alternative time-series price forecasting models for Bitcoin, Ethereum, and Litecoin cryptocurrencies. Data mining through CoinDesk, coinmarketcap.com, and bitbuy.ca APIs.

Research Officer | University of Saskatchewan | January 2018 – December 2019

- Data analysis for a comprehensive overview of the local economic and social indicators of northern Saskatchewan communities, including data mining, cleaning and transforming datasets, building descriptive and predictive models, and data visualization.
- Provided policy advice to local governments based on our findings – as reports and presentations.
- Automated various tasks. For example, we routinely worked with Statistics Canada data, but previously the datasets used to be downloaded manually from the web, and then processed and visualized in MS Excel. I automated data retrieval and analysis using R, so that no relevant data got overlooked, while ensuring time-efficiency and one-click reproducibility.

Research Assistant | University of Saskatchewan | August 2015 – December 2017

- Analyzed survey and focus group data about public attitudes towards different sources of energy in Saskatchewan: I collected and coded survey data, designed statistical methodology, performed statistical analysis, cross-checked the results against qualitative focus-groups data, and visualized the results (originally in SPSS and then replicated the process in R for reproducibility).
- Carried out comparative analysis of carbon pricing policies across Canadian provinces to estimate the potential effects of the federal carbon pricing initiative on the economy of Saskatchewan.

Graduate Service Fellow | University of Saskatchewan | December 2015 – April 2017

- Analyzed current and historic student enrollment data and the impact of international academic cooperation networks on international students recruitment.
- Collected the information for, and coordinated the work on the production and publication of a non-periodic “Discover US” magazine highlighting our university’s most prominent research projects.

Personal Projects and Publications

- Blogging about R and data analytics at www.dataenthusiast.ca. My “[COVID-19 Canada Data Explorer](#)” Shiny dashboard app was [endorsed](#) by the Macdonald-Laurier Institute – one of Canada’s leading public policy think tanks – to track the progression of the current pandemic in Canada.
- “[Designing COVID-19 Data Tools](#)” policy brief. Co-authored with Dr. Coates and Dr. Holroyd.
- “Diverse Community Energy Futures in Saskatchewan, Canada”. *Clean Technologies and Environmental Policy* 22(3). 2020. Co-authored with Dr. Rayner et al.

EDUCATION

Master of Public Policy | May 2017 | University of Saskatchewan

Certifications | Multiple | DataCamp

Some of the key ones include: Importing and Cleaning Data with R Skills Track, Spatial Data with R Skills Track, Shiny Fundamentals with R Skills Track, and many more. Please see [my DataCamp profile](#) for a complete list.