# JOHN COLIN SPEAR

Linkedin | Github | Website

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## Summary


- Self directed quantitative researcher with six years combined experience and education applying statistics, causal inference, machine learning and computational methods to economic, business and social questions.
- Proficient in SQL and Python (numpy, pandas, scikit-learn, statsmodels), experience integrating with other languages and tools (Stata, R, Excel, bash). Solid understanding of data design and engineering
- Skilled at communicating technical results and concepts to non-specialists in verbal, written and graphical formats
- Passionate about understanding and leveraging data and quantitative methodologies to understand challenging problems. Love learning new and better ways to improve this process.


## Relevant work experience

### Intermediate Analyst
September 2020 - present

*Simon Fraser University, Institutional Research and Planning*

- Redesigned data models, built data pipelines, wrote documentation and prepared complex SQL queries for analysis
- Automated business processes to reduce error and speed execution.
- Worked cross-functionally across departments to facilitate data collection and support strategic decision making.
- Championed data and software engineering best practices throughout the department.

### Associate Consultant, Data Science Track
January 2018 - March 2020

*The Deetken Group*

- Collaborated across a diverse range of business functions and sectors to define client problems and develop solution strategies to support strategic planning, business process improvement and research objectives
- Led quantitative research and analysis on complex problems utilizing techniques such as linear and nonlinear optimization, supervised and unsupervised machine learning, time series and cross-sectional statistical methods
- Developed two machine learning driven R&D applications and helped prepare successful Scientific Research and Experimental Development Tax Incentive Program (SR&ED) submissions
- Started weekly team meetings to share knowledge, introduce new technologies and help guide business strategy
- Developed written, diagrammatic and visual communication documents to present findings on complex results for both business and technical audiences, including data visualizations

### Research Officer
August 2015 - July 2016

*University of Zurich*

- Built and analyzed large data set using historical, census, survey, and geospatial data using SPSS, Stata, and Python
- Designed and applied spatial regression models, regression discontinuity design, instrumental variables, and other techniques for causal statistical inference
- Prepared high-quality deliverables on findings, including written and verbal reports, presentations, and data visualizations to audiences of varying levels of expertise
- Collaborated with international team to research and implement econometric methods and analytical approaches

### Owner / operator
2011 - 2012

*Ingrained Bread*

- Founded and managed a community-supported bread baking company
- Cultivated business relationships, developed innovative business model and products, managed customer databases and recruited new customers

## Education

### PhD, Economics (no degree received) 2016 - 2017

*University of British Columbia*

- AD Scott Fellowship recipient
- *Microeconomic theory:* auctions, bayesian games, directed search, matching, signalling, mechanism design
- *Macroeconomic theory:* complete markets, money, cash in advance, risk sharing, growth and wealth distribution
- *Econometric theory:* identification, estimation, hypothesis testing, convergence, endogeneity, instrumental variables, generalized method of moments, maximum likelihood estimation, nonlinear regression, quantile regression

### Master of Science, Applied Economic Analysis July 2015

*Barcelona Graduate School of Economics (Universitat Pompeu Fabra)*

- Relevant coursework: Cross sectional and time-series Econometrics, Social and Economic Network Analysis
- Implemented econometric techniques such as hypothesis testing, uni- and multivariate regression analysis (linear and nonlinear) using Stata, forecasting and volatility modeling (risk management) of time series data using R
- Group capstone project (thesis): Eurobonds Then and Now: An Evaluation of Ghana's First Issuance of Internationally Denominated Bonds. Responsible for econometric analysis using Synthetic Control Matching.

### Bachelor of Arts (Spanish, Mathematics, and Economics) May 2014

*Fort Lewis College*

- Graduated with honours
- Excellence in Spanish Language Senior Award, National Collegiate Hispanic Honour Society induction, Nathan Herzog and David Osleth Scholarships

## Tools & Skills

*Tools:*

- **Programming languages (high proficiency):** Python, SQL
- **Programming languages (some proficiency):** R, Bash
- **Data processing, inference and prediction:** SQL, pandas, Scikit-learn, numpy, Stata
- **Data visualization and communication:** matplotlib, Seaborn, plot.ly
- **Data stores:** Postgres, SQL Server

*Skills:*

- Data wrangling (cleaning, merging, parsing, aggregating) and ETL
- Statistics (Identification, estimation, causal inference, prediction, hypothesis testing, quasi-experimental methods)
- Machine learning (feature engineering, supervised and unsupervised model training, tuning, evaluating and predicting)
- Data visualization and communication (Excel, matplotlib, Seaborn, plot.ly)
- Microsoft Office, G Suite