

**ADITYA TAKWALE**

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Substantive: PC-02 (indeterminate)

Security: Secret clearance

About Me

I am a 4th year B.Sc. Computer Science student, with previous degrees in B.Sc. Neuroscience and M.Sc. Biotechnology. I have extensive experience in programming and data analysis in both government and academic settings. I am seeking positions that will allow me to draw upon my diverse educational background and offer opportunities for research, analysis, increased leadership responsibility as well as interesting viewpoints of the federal government. Recently, I have been self-studying cloud computing and earned certifications in [AZ 900](#), [AI 900](#), [DP 900](#) and [PCEP](#). I am also pursuing further studies in applied mathematics and financial reporting. I am passionate about current affairs, history, politics, and philosophy and my hobbies include cycling, chess, and reading.

WORK HISTORY**Planning Analyst (PC – 02, indeterminate). *Environment and Climate Change Canada (April 2020 - present)***

- Drafted technical specifications of a contract for an Oracle APEX-based Monitoring database and application. Requested management to design the database and application personally instead of hiring an external contractor and independently successfully designed, implemented and deployed the application thereby fulfilling a long-standing desire of the program and winning an award. Key steps included: i) assessing data requirements and designing an appropriate database schema (tables, fields, keys, relations, triggers, sequences, etc.) ii) building and testing the application iii) conducting user acceptance testing iv) creating an end-user manual as well as technical documentation v) deploying the application and assisting program members as necessary
- Used Adobe Experience Manager to maintain, update and develop the [Marine Program Disposal at Sea website](#).
- Used ChatGPT to accelerate Python code development for various tasks such as analyzing linguistic complexity of program website content by quantifying average sentence length and syllable counts, automating the creation of file structures on shared drives, inventorying data holdings on network drives and removing duplicate files

Analyst, Data Services (EC- 02, indeterminate). *Public Service Commission (December 2018 – February 2020)*

- Co-developed a dynamic, web-based dashboard for visual exploration of public service staffing data, incorporating filters like classifications, provinces, and departments using Python with Dash, Plotly, Flask, and Pandas libraries.
- Employed fuzzy string matching and geocoding APIs to match Canadian cities from disparate datasets, optimizing results by minimizing Haversine distance using Python with GeoPy and Pandas libraries.

Project Services (AS- 01, term). *Labour Program, ESDC. (March 2018 – December 2018)*

- Administered the Industrial Relations Information System (IRIS) for the Collective Bargaining and Settlements (CBA) team.
- Developed a programmatic solution to address accidental data loss from IRIS, saving CBA officers hundreds of person-hours of manual data entry. (Python and SAS)
- Maintained and utilized a comprehensive library of SAS code for monthly data products.
- Assisted client services with more complex data requests by implementing solutions in either SAS or Python.

Junior Researcher (EC - 02, casual). *Labour Program, ESDC. (September 2017 – March 2018)*

- Created a web scraper to download, merge, and analyze 100,000 CSV files from a Government of Ontario website (Python; Selenium, Pywinauto, Pandas).
- Developed a Python tool for creating infographics on a map of Canada (Python; Matplotlib, Pandas).
- Helped write a briefing note to the ADM addressing the inconsistencies in various Labour Program databases.
- Became the expert on the LA2000 database and supported management with statistical and visual analyses.

Database and Statistical Analyst (FSWEP). *Labour Program, ESDC. (May 2017 – Sep 2017)*

- Extracted and anonymized data from the LA2000 database (~450 CSV tables, ~1 GB) for a university research group, maintaining data structure and integrity.
- Created detailed documentation of the dataset, including potential issues.

EDUCATION

B.Sc. Computer Science. Carleton University (2015 -)

- 4th year B.Sc. Computer Science standing.
- **Coursework:** Discrete Structures, Probability & Statistics, Linear Algebra, Calculus, Web Design, Databases, Operating Systems, Programming Paradigms, Abstract Data Types, Software Engineering, Systems Development Life Cycle, Algorithms and Algorithmic Analysis.

Machine Learning Engineer Nanodegree. Udacity (2015-2016)

- **Coursework:** Model Evaluation and Validation, Training and Testing models, Evaluation Metrics, Supervised and Unsupervised Learning, Clustering, Deep Learning, Neural Networks, Reinforcement learning.

M.Sc. Biotechnology. McGill University (2014-2015)

- **Coursework:** Practical laboratory intensives (Gene Cloning, qPCR, RT-PCR, Pyrosequencing, Chromatography, etc.), Artificial Cells, Bioethics, Micro and Nano-Biotechnology, Bioinformatics.
- Master's Thesis Research (*see Research and Publications*).

B.Sc. Combined Honors Neuroscience. Carleton University (2010-2013)

- **Coursework:** Psychology, Cognitive Science, Cell Biochemistry, Human Physiology, Genetics, Research Methods, Advanced Design and Analysis, Microbiology, Membrane Biochemistry, Immunology, Neuroscience, Sensory Processes, Pharmacology.
- Awarded Senate Medal for Outstanding Academic Achievement.
- Wrote and defended Undergraduate Research Thesis (*see Research and Publications*).

Microsoft Azure Cloud computing and other certifications

- [AZ 900](#), [DP 900](#), [AI 900](#), [PCEP – Certified Entry-Level Python Programmer](#)

RESEARCH

Sam David's laboratory. Centre for Research in Neuroscience (Research Institute of McGill University Health Centre)

- Conducted experiments into mathematically quantifying structural changes that occur in brain microglia in response to bacterial infection. Performed wet lab procedures including injecting mice with bacterial endotoxin (LPS), sacrificing mice, performing spine and brain extractions, freezing tissue extracts with liquid nitrogen, slicing tissue in cryostat, immunohistochemical staining, imaging with confocal microscopy and 3-D reconstruction using microscopy image analysis software to perform cell tracings.
- Identified metrics to quantify observed adaptations in microglia. Analyzed data using Python libraries (Pandas, Matplotlib, Numpy, Scipy) to extract relevant data, perform mathematical analyses and graphically depict findings.
- Wrote and defended project to a panel of experts comprised of McGill professors and industry experts (*see Publications*).

John Stead's human genetics laboratory. Carleton University

- Conducted research into the relationship between single nucleotide polymorphisms in the oxytocin receptor gene (OXTR) and gambling addiction.
- Performed wet lab experiments involving extraction and purification of DNA from saliva samples and performing quantitative PCR. Correlated OXTR expression levels with answers to battery of tests assessing tendency towards impulsive behavior and problem gambling.

PUBLICATIONS

- [Anderson, W., Greenhalgh, A., Takwale, A., David, S., Vadigepalli, R. \(2017\) Novel influences of IL-10 on CNS inflammation revealed by integrated analyses of cytokine networks and microglial morphology. Frontiers Cellular Neuroscience Volume 11: article 2](#)