

# Felipe González

MSc. COMPUTER SCIENCE · BS. IN COMPUTER SCIENCE AND ENGINEERING

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## Education

### MSc. Computer Science

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

*Santiago, Chile*

*March 2018 - Exp. March, 2021*

- Focus on Social computing using Natural Language Processing, Deep Learning and Data Visualization methods
- Average grade 90/100. GPA: 3.82/4

### Bsc. Computer Science and Engineering

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

*Santiago, Chile*

*March 2012 - February 2018*

- Focus on Software Engineering, Project Management and Information Retrieval
- Average grade 82/100 GPA: 3.5/4 Passed subjects: 66/66 **Best Graduated Student, Rank: 1/32**
- Exchange program at Politecnico di Milano, Italy during February - August 2016. Attending master degree classes.

## Skills

<b>Data Mining</b>	Focus on natural language processing using Python, Pandas, Gensim, and NLTK
<b>Machine Learning</b>	SVM, decision trees, clustering, dimensionality reduction, linear and logistic regression using Sklearn
<b>Deep Learning</b>	Classification, regression, and clustering using Keras and Tensorflow. CNNs, LSTMs, GRUs, VAEs, and GANs
<b>Information Retrieval</b>	Word embeddings, topic modeling and search engines algorithms
<b>Data Visualization</b>	Meaningful and interactive visualizations using D3.js, Javascript, Plotly, Seaborn and Matplotlib
<b>Statistical Analysis</b>	Data management, regression analysis and graphics using R
<b>Business Intelligence</b>	Data exploration using Tableau, Power BI, Orange Data Mining Tool and RapidMiner
<b>Web &amp; Android developer</b>	Websites using Django/CodeIgniter/Spring MVC frameworks. Android applications using Java
<b>Programming</b>	Python, Java, C++, C
<b>Languages</b>	English, Spanish, Italian
<b>Soft skills</b>	Leadership, problem-solver, team player, attention to detail, creative

## Publications

- **González, F.**, Figueroa, A., López, C., & Aragon, C. (submitted). Regional Differences on Information Privacy Concerns After Facebook-Cambridge Analytica Data Scandal. EPJ Data Science Journal, 27 pages. [Impact factor: 4.10]
- **González, F.**, López, C., Castro, C., & Vasquez A. (to appear). Inequalities in Computational Thinking among Incoming Students in a STEM Chilean University. IEEE Latin America Transactions Journal, 7 pages. [Impact factor: 1.10]
- **González, F.**, Figueroa, A., López, C., & Aragon, C. Information Privacy Opinions on Twitter: A Cross-Language Study. In Conference Companion Publication of the 2019 on Computer Supported Cooperative Work and Social Computing, CSCW '19, Austin, TX (2019), 4 pages. [Acceptance rate: 31.2%].
- **González, F.**, Yu, Y., Figueroa, A., López, C., & Aragon, C. Global reactions to the Cambridge analytica scandal: A cross-language social media study. In Companion Proceedings of The 2019 World Wide Web Conference, WWW'19, San Francisco, CA (2019), 8 pages [Acceptance rate: 18%].
- **González, F.**, López, C., & Castro, C. Development of Computational Thinking in High School Students: A Case Study in Chile. In 2018 37th International Conference of the Chilean Computer Science Society IEEE, SCCC'18, Santiago, Chile (2018), 8 pages. **Best paper award**

## Work Experience

### Visiting Researcher

DALHOUSIE UNIVERSITY

*Halifax, Canada*

*January 2020 - Present*

- Developed TopicVisExplorer, a web-based interactive visualization tool that enables humans to refine and compare LDA-generated topics of multiple corpora.
- Proposed a topic similarity metric to compare LDA-generated topics that support better human interpretation than current state-of-the-art metrics.
- Proposed a document-based topic splitting operation that supports human-in-the-loop modifications of topic modeling results.
- Conducted a user study of TopicVisExplorer to validate its usefulness for human interpretation and comparison of LDA-generated topics.
- Advisors: Prof. Evangelos E. Milios & Prof. Fernando Paulovich

## Research Assistant

Santiago, Chile

UNIVERSITY OF WASHINGTON - UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

March 2018 - December 2019

- Proposed a novel methodology for inter-language comparison of social media text that offers an alternative method to conduct studies on data privacy perspectives across speakers of different languages and provide a roadmap for future cross-cultural research.
- Collected and analyzed unstructured textual social media data related to information privacy. Inter-language differences found on privacy-related views expand current knowledge of information privacy perspectives.
- Published 2 conference papers on highly-ranked international computer science conferences.
- Advisors: Prof. Cecilia Aragon & Prof. Claudia López

## Professor

Santiago, Chile

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

March 2018 - August 2019

- Python programming classes for freshman engineering students. Best ranked teacher for three semesters in a row.
- Data science classes for computer science & and engineering students. Developed a class curriculum, lesson plans, and instructions about how to manage data and create meaningful visualizations using Python, Pandas, Matplotlib, Seaborn and Plotly.
- Supervisors: Prof. Pedro Godoy & Prof. José Luis Marti.

## Teaching assistant

Santiago, Chile

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

March 2014 - December 2017

- Teaching assistant for “Data structures” (INF-152): Teach students about the C/ C++ programming language and about data structures such as: linked list, stacks, queues, heaps, hash tables, trees and graphs. Supervisor: Dr. Diego Arroyuelo
- Teaching assistant for the courses “Project Management” (INF-360), and “Software Engineering” (INF-228): Promote management skills (planning, organization, direction and control) in students through the follow-up to their projects of the XXV Feria de Software (Software Fair). Compliance with requirements and design of prototypes are reviewed. Supervisors: Prof. Pedro Godoy, and Prof. Sergio Murua
- Teaching assistant for the course “Information Systems” (INF-270): Upload online resources and grade assignments & final projects. Supervisor: Katherine Rivera

## Research Intern

Santiago, Chile

GEOINNOVA CONSULTORES LTDA

January 2017 - March 2017

- Integrated Electron, C/C++, Node.js as a web application stack to run C++ on the web. This improved the run time of computing intensive tasks.
- Proposed and evaluated a methodology to systematically compare linear algebra libraries (e.g: Armadillo, Blaze) for C++ language.
- Programmed an optimized version of the k-nearest neighbors algorithm in C that supports high dimensional data.
- Supervisor: Msc. Alan Toledo

## Project Manager

Santiago, Chile

HANDIAPPS

March 2015 - March 2016

- Developed “MoneyScanner”, an android application made for visually impaired people that using Open Computer Vision Library can recognize Latin American banknotes. This product appeared in radio, newspaper and television and it was awarded on the XXIII Feria de Software (software fair).
- Ensured that all projects are delivered on-time, within scope and within budget.
- Created and maintained comprehensive project documentation.

## Software Engineer Intern

Santiago, Chile

CONTINUUM

December. 2014 - February. 2015

- Developed an audit system for users who have made a transfer in chilean pension system companies (AFP) using Java and Spring MVC. This platform improved the user experience during operations and is currently used by five big chilean companies.
- Supervisor: Chief operating officer. Liliana Reyes

## Selected programming projects

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- **Fake news detection system:** Using Recurrent Neural Networks, this projects aims to detect fake news considering information about the propagation of certain tweets.
- **Sentiment analysis on Twitter:** Sentiment analysis to English and Spanish texts using NLTK library. ElasticSearch tool was used to index the data. LDA and NMF was used to do Topic Modeling.
- **Neural information retrieval system:** A novel approach to retrieve documents given a query using neural networks. A Skip-gram architecture was used. The documents were ranked considering the BM25 method.
- **Genetic algorithm metaheuristic for open vehicle routing problem:** Inspired by genetic algorithms, I created a novel C++ solution to the Open Vehicle Routing Problem.

## Honors & Awards

2020	<b>Emerging Leaders in the Americas Program (ELAP)</b> , EduCanada Research Scholarship. Funding for research in Canada at Dalhousie University (Canada). \$7,300 for travel and living costs	Canada
2019	<b>Travel Grant</b> , Universidad Técnica Federico Santa María. Funding to support my participation at the 22nd ACM Conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2019), Austin, TX, USA.	Chile
2019	<b>The Cornell, Maryland, Max Planck Pre-doctoral Research School (CMMRS 2019)</b> , Max Planck Institute for Software Systems (MPI-SWS). Got selected to attend to the CMMRS 2019 to learn about cutting-edge research in computer science at the MPI-SWS, Germany. Travel and living costs fully funded.	Germany
2019	<b>La Serena School for Data Science (LSSDS): Applied tools for data-driven sciences</b> , Association of Universities for Research in Astronomy (AURA). Travel and living costs fully funded.	Chile
2019	<b>National Msc. grant</b> , National Commission for Scientific and Technological Research (CONICYT). Top 7% Applicant. \$9500 for tuition and living expenses.	Chile
2019	<b>Travel Grant</b> , Universidad Técnica Federico Santa María. Travel Grant to support my participation at the 2019 International World Wide Web Conference, San Francisco, USA.	Chile
2018	<b>Incentive Program for Scientific Initiation (PIIC)</b> , Universidad Técnica Federico Santa María, \$2600 for the research project: "Cultural Differences in Data Privacy Perspectives on Social Media".	Chile
2018	<b>Travel Grant</b> , ACM SIGCHI. Travel Grant to support my participation at the conference on Computer-Supported Cooperative Work and Social Computing (CSCW 2018), New Jersey, USA	United States
2018	<b>Travel Grant</b> , Universidad Técnica Federico Santa María. Travel Grant to support my participation at the 35th International Conference of the Chilean Computer Science Society (SCCC 2018)	Chile
2018	<b>Msc. Tuition scholarship</b> , Universidad Técnica Federico Santa María. Full tuition fees coverage on the Msc. Computer Science program	Chile
2018	<b>Msc. UTFSM scholarship</b> , Universidad Técnica Federico Santa María. \$6700 for living expenses	Chile
2016	<b>Santander International Mobility Program</b> , Santander Bank. \$5000 for travel and living expenses during a exchange experience at Politecnico di Milano, Milan, Italy.	Italy

## Extracurricular Activity

### Overleaf Advisor

Santiago, Chile

OVERLEAF

June 2017 - Present

- Promote the usage of Overleaf as platform to work on LaTeX projects.

### Tutor

Santiago & Valparaíso, Chile

UNIVERSIDAD TÉCNICA FEDERICO SANTA MARÍA

July 2017 - August 2018

- STEM Camp: Teach High school students to develop simple apps using MIT AppInventor.
- Teach C++ to high school students for the International Olympiad in Informatics (IOI)

### Teach Event colaborator

Santiago & Valparaíso, Chile

DIFFERENT ORGANIZATIONS

March 2012 - October 2017

- Community Manager at *Feria de Software* (Software fair) promoting the event and managing paid announcements on social networks.
- Volunteers' coordinator at StarsConf, one of the most important conferences in South America that joins UX experts, programming innovation and entrepreneurship.
- Volunteer at the Latin American Festival of free software (FLISOL), one of the largest event for the dissemination of free software.