

# Diego Garcia-Olano

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## EDUCATION

**The University of Texas at Austin**, Austin, TX, USA.

**9/2017-Present**

**Ph.D in Electrical and Computer Engineering**

**Advisor:** Dr. Joydeep Ghosh. Intelligent Data Exploration & Analysis Lab. [ideal.ece.utexas.edu](http://ideal.ece.utexas.edu)

**Advisor:** Dr. David Paydarfar. Applied Lab in Dell Medical School [sites.utexas.edu/paydarfar/](http://sites.utexas.edu/paydarfar/)

**Universitat Politècnica de Catalunya** - Barcelona, Spain.

**Graduated: 7/2015**

**Masters in Computer Science - Data Science**

**Advisors:** Marta Arias, Josep Lluís Larriba Pey

**Research Groups:** Laboratory for Relational Algorithmics, Complexity and Learning ( LARCA ) / DAMA

**Thesis:** "Automated Construction & Analysis of Political Networks". [whoyouelect.com/texas](http://whoyouelect.com/texas)

Additional research with Professor Lluís Belanche for European wide [aquavalens.org](http://aquavalens.org) project

**The University of Texas at Austin** Austin, TX, USA.

**Graduated: 5/2004**

**Computer Science** (B.A., 05/2004) (3.86 GPA of 4) Graduated with Honors

**Government** (B.A., 05/2005) (4.0 GPA) with minor in: Business

**Hispanic Studies** (B.A., 05/2004) Graduated with Honors

**Universidad de Sevilla**, College of Arts & Letters (Filología) Sevilla, Spain;

**Attended: Fall 2002**

**Institut Catholique de Toulouse**, Institut de Langue, Toulouse, France;

**Attended: 03/2012 - 06/2013**

## RESEARCH INTERESTS

Explainable Machine Learning with a focus on NLP and sequential data for applications in public policy and health.

Current focus on Biomedical Interpretable Entity Representation learning and interpretable multimodal learning.

## PUBLICATIONS

- **Diego Garcia-Olano**, Yasumasa Onoe, Ioana Baldini, Joydeep Ghosh, Byron Wallace and Kush Varzney. "Biomedical Interpretable Entity Representations". ACL-IJCNLP 2021.
- Daniel Gillick, Sayali Kulkarni, Alessandro Presta, Jason Baldrige, Eugene Le and **Diego Garcia-Olano**. "Learning Dense Representations for Entity Retrieval". CoNLL 2019
- **Diego Garcia-Olano**, Alan Gee, Joydeep Ghosh and David Paydarfar. "Deep Classification of Time-Series Data with Learned Prototype Explanations". ICML 2019 Time Series Workshop ( 4 pages ) [bit.ly/2lIuEK](http://bit.ly/2lIuEK) & IJCAI 2019 Workshop on Knowledge Discovery in Healthcare Data ( 8 page ) [arxiv.org/abs/1904.08935](http://arxiv.org/abs/1904.08935)
- Kris Sankaran, **Diego Garcia-Olano**, et.al, "Applying Machine Learning methods to Enhance the Distribution of Social Services in Mexico", Data Science For Social Good Datafest, 08/2016 and arxiv update 2017, Chicago. Paper: [arxiv.org/abs/1709.05551](http://arxiv.org/abs/1709.05551) , talk at UChicago DataFest: [goo.gl/AG66bg](http://goo.gl/AG66bg) , poster: [goo.gl/Bc4Haf](http://goo.gl/Bc4Haf)
- **Diego Garcia-Olano**, Marta Arias and Josep L Larriba-Pey: "Automated Construction and Analysis of Political Networks via open government and media sources", European Conference on Machine Learning. ECML SoGood workshop, 09/2016, Riva del Garda, Italy. paper: [goo.gl/xgCU81](http://goo.gl/xgCU81)
- Ivan Paz-Ortiz, **Diego Garcia-Olano** and Carlos Gay-García. "Term-frequency Inverse Document Frequency for the Assessment of Similarity in Central and State Climate Change Programs: An Example for Mexico", Simultech. Special Session on Applications of Modeling and Simulation to Climatic Change and Environmental Sciences. 06/2015, Colmar, France. [diegoolano.com/ivanpaz](http://diegoolano.com/ivanpaz)

## COMMUNITY INVOLVEMENT

- ACL-IJCNLP 2021 reviewer, ICML workshop reviewer, NeurIPS 2021, ICLR 2021 reviewer
- ICLR 2020 reviewer ( Top Reviewer Award ), ICLR AI for Social Good 2019 workshop reviewer
- ICML 2020 reviewer, Texas Linguistics Summit Conference 2019 reviewer
- Data Science For Social Good - Project scoping and Candidate interviewer: 2017, 2018

## PHD PROPOSAL & SELECTED PROJECTS & PRESENTATIONS

- PhD Proposal "In-process Diagnostic methods for Entity Representation Learning on Sequential data at Scale" accepted June 2021 by Committee: Alex Dimakis, Harris Vikalo, Atlas Wang & Byron Wallace) [shorturl.at/jnKQT](https://shorturl.at/jnKQT)
- Leveraging State-of-the-Art Unsupervised Style Transfer Models for Counterfactual Text Generation. 5/2020. Computational Linguistics Seminar project. [shorturl.at/chAIW](https://shorturl.at/chAIW)
- Explainability methods for NLP talk at Cognitive Scale 2/2020. [shorturl.at/ftxzT](https://shorturl.at/ftxzT)
- Generating Counterfactual Explanations using Reinforcement Learning Methods for Tabular and Text data. 12/2019 Reinforcement Learning Class project. [shorturl.at/fpBF2](https://shorturl.at/fpBF2)
- Link Detection in Political Networks, 12/2018. NLP Final Course Project. Studying the use of Graph Convolutional Network embedding techniques for solving the task. [shorturl.at/IY268](https://shorturl.at/IY268)
- Lecture on Modern Visualization, UT Austin, 11/2020. slides: [goo.gl/R6PVzF](https://goo.gl/R6PVzF)
- Network Science Institute at Northeastern University, Boston, MA. 10/2016: "Whoyouelect.com" technical talk. event link: [goo.gl/UStGMp](https://goo.gl/UStGMp) slides: [goo.gl/F1dNcv](https://goo.gl/F1dNcv)
- Aquavalens Project meeting, Alicante, Spain. 11/2014. "WP5: Preliminary analysis of the Aquavalens matrix with ICHNAEA® software for Microbial Source Tracking". <http://bit.ly/2eDp9ga>
- "Understanding US counties: Clustering and Classification over voting, socio-economic and public health", 4/2014 Predicting Blue Islands in the US. Paper/Code/Visualization: [diegoolano.com/electionmap](https://diegoolano.com/electionmap)

## PROGRAMMING SKILLS

Highly skilled with python, pytorch, huggingface, tensorflow, R, unix, d3, mysql/postgres, git, apache/nginx, js.

Experience with: keras, postgis/qgis, spark, java, c++, nodejs, matlab.

[www.github.com/diegoolano](https://www.github.com/diegoolano)

## EMPLOYMENT EXPERIENCE

**IBM Research- NY** IBM Science for Social Good PhD Fellow

5/2020 - 8/2020

Applied research on Biomedical Interpretable Entity Representations For Drug Repurposing using PubMed articles and links between UMLS and Wiki for learning word embeddings for tasks. Host: Kush Varshney, Co-host: Ioana Baldini

**Google AI - Seattle** Software Engineering Research Intern

5/2019 - 8/2019

Conducted applied research on explaining seq2seq models using feature attribution methods on Transformer and LSTM based architectures with attention for machine translation.

Host: Besim Avci, Co-host: Frederick Liu

**Google AI - Mountain View** Software Engineering Research Intern

5/2018 - 8/2018

Conducted applied research on Entity Linking task, built upon internal framework and worked on reproducing findings for OpenAI Deep Type paper. Work from project published in CoNLL 19. Host: Jason Baldridge, Co-host: Daniel Gillick

**University of Texas at Austin - Intelligent Data Exploration & Analysis Lab** Research & Teacher Assistant 9/2017 -

TA for Fall 17 Advanced Predictive Modeling course on Machine Learning with Python.

TA for Spring 19 Responsible AI Graduate Engineering seminar course. Syllabus: [www.github.com/ideal-ut/RAI-course/](https://www.github.com/ideal-ut/RAI-course/)

TA for Spring 19 Manoj Saxena's Ethics in AI Design short course

**Eric & Wendy Schmidt Data Science For Social Good at the University of Chicago** DSSG Fellow 5/2016 - 9/2016

Worked with SEDESOL of Mexico to improve its resource allocation of social service benefits provides to 80 million people. Developed predictive models to estimate incomes, needs, and likelihood of eligibility during recertification periods. Received training in machine learning for social projects by the Chief Scientist of Barack Obama's 2012 election campaign.

**Diego Garcia-Olano, www.diegoolano.com** Freelance Developer, Data Scientist and Data Visualizer 9/2011 - 9/2017

Principal architect/developer for clients including Glasstire, Spotify, Pitchfork, Boxee TV, Switch Energy Project, etc.

Frontend/backend/analytics (mostly python/php, d3, javascript, unix, apache/nginx, mysql/postgres/mongodb)

**Freelancers Union** - Brooklyn, New York, Software Developer

4/2009 - 12/2009, 5/2010 - 9/2011

Principal developer of Political Action Committee Fundraising for State and Federal PAC's, Client Scorecard, and The

Freelance Life applications used by over 120,000 members (django,jquery,postgres ).

**Sapling Systems - Science Technologies;** Austin, Texas, Developer & Adaptive Learning Researcher **2/2005 – 2/2009**  
Principal developer of the IBIS educational platform used by 35,000 students, saplinglearning.com, Provided research and working prototypes on Item Response Theory models for feedback functionality.

**Growth Accelerated Partners;** Buenos Aires, Argentina; Lead Software Developer **11/2007 - 11/2008**  
Principal developer of Label Designer for personalwine.com. Oversaw team of developers in Costa Rica

**Caritas of Austin;** Austin, Texas; Lead Developer **3/2006 - 3/2008**  
Developed app for a refugee employment program to digitize employment search data, allow better data sharing of job opportunities and facilitate job matches with potential employers. Developed time-tracking system for case workers to provide greater accountability and transparency of donors funds.

**Department of State,** US Embassy, Caracas, Venezuela; Political Affairs Intern **9/2004 - 1/2005**  
Maintained and updated the Embassy Caracas SIPRANET transferring sensitive cables  
Observed Regional Elections in twelve voting centers around the greater Caracas area

**Ford Motor Company** Global Manufacturing Supply Chain; Dearborn, Michigan; Developer **5/2003 - 8/2003**  
Developed project to simulate daily production levels for Ford's manufacturing plant in Belgium (VB, Java )  
Provided analysis, infrastructure support, software testing, and acceptance processes on vendor product.

**Ford Motor Company** Global Consumer Systems; Dearborn, Michigan; IT & eBusiness Intern **5/2002 - 8/2002**  
Lead various benchmark studies comparing Ford IT capabilities with OEM's.  
Analysis of proposed Siebel application for Ford Customer Response Centers in the US and Canada

**UT Learning Center;** Austin, Texas; Tutor, **1/2002 - 7/2004**  
Tutored students on a weekly basis in computer science, logic, math, spanish, accounting, and chemistry

#### **VOLUNTEERING AND SOCIAL PROJECTS**

- **Brandon Dudley campaign for Harris County Tax Assessor/Voter Registrar** **1/2016 - 4/2016**  
Created digital tools to assist the campaign's volunteers to get out the vote.
- **ACLU Immigration Policy Center** Criminal Alien Program Database and Data Visualization; **1/2008 - 1/2009**  
Developed system to parse, digitize and validate prisoner records from Texas counties between 2000 and 2008 and built a visualization tool to explore the data. The following policy paper is based on it: <http://goo.gl/QItf8>
- **Relief Oversight** - Helped gather a team and develop a publicly generated, app to monitor the activities and effectiveness of organizations soliciting donations for relief after an earthquake in Haiti. **12/2009 - 2/2010**
- **Volunteer Healthcare Clinic;** Austin, Texas, Spanish Interpreter & Aide **5/2008 - 8/2008**
- **El Buen Samaritano;** Austin, Texas, ESL Teacher. **9/2003 - 5/2005**  
Taught English night courses for a non-profit provider of working-poor, Spanish-speaking families.

#### **LANGUAGE PROFICIENCIES**

Fluent Spanish (written & spoken)  
French ( Proficient - C1 level as defined by CEFR )

#### **AWARDS & AFFILIATIONS**

The Charles W. and Margaret A. Tolbert Endowed Scholarship in Electrical and Computer Engineering (2019 and 2021)  
Eric & Wendy Schmidt Data Science For Social Good Fellow  
HSF / Ford Corporate Scholarship Recipient  
College of Natural Sciences College Scholar (academic achievement award)  
Upsilon Pi Epsilon member (Computer Science Honor Society)