

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

Advisor: Dr. David Paydarfar. Applied Lab in Dell Medical School 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

Additional research with Professor Lluís Belanche for European wide 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 Counterfactual text generation & Biomedical Interpretable Entity Representation learning.

PUBLICATIONS

- 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/2lJlueK
- Alan Gee, **Diego Garcia-Olano**, Joydeep Ghosh and David Paydarfar. Explaining Deep Classification of Time-Series Data with Learned Prototypes. IJCAI 2019 Workshop on Knowledge Discovery in Healthcare Data. (8 page) <https://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 , talk: goo.gl/AG66bg , poster: 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
- 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

COMMUNITY INVOLVEMENT

- ICLR 2020 reviewer, 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

SELECTED PROJECTS & PRESENTATIONS

- 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
- Predicting a Politician's Party Affiliation from a Photo, 12/2017. Exploring use of Convolutional Neural Nets to predict party affiliations for 11,000 state level reps, use of object detection (YOLOv2) to aid in task, ethical discussion and use of GANs to create "fake politicians". paper: goo.gl/b5T7fs, slides: goo.gl/JPNK5b
- Lecture on Modern Visualization, UT Austin, 11/2018. slides: goo.gl/R6PVzF
- Network Science Institute at Northeastern University, Boston, MA. 10/2016: "Whoyouelect.com" technical talk. event link: goo.gl/UStGMp slides: goo.gl/F1dNcv
- "Graph technologies for political analysis". Graph Technologies & Applications Conference. Barcelona. 3/2015
- 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
- Gallery of Data Project and Visualizations. diegoolano.com/vizs/

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

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/

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

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)