Ollin D. Langle-Chimal

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Primary Research Interests

Computational Social Science, Development, Augmented Democracy, Mobility Patterns, Urban Systems, Economics, Statistical Physics, Complex Systems Theory, Machine Learning, NLP, Network Science, Human Behavior, Sustainability, Systemic Violence.

Education

University of Vermont (UVM)
Burlington, VT, USA

PhD, Complex Systems and Data Science — *Aug. 2018 – Present*

- Advisor: Nicholas Cheney

Instituto Tecnológico Autónomo de México (ITAM)
Mexico City, Mexico

MSc, Data Science — *Aug. 2016 – May. 2018*

- Advisor: Carlos Fernando Esponda Darlington
- Thesis: Non-backtracking spectral algorithm for community detection on weighted networks (with honors).

Universidad Nacional Autónoma de México (UNAM)
Mexico City, Mexico

BSc, Physics — *Aug. 2006 – May 2012*

- Advisor: Jesús Espinal Enriquez
- Thesis: Optimal percolation on complex networks.

Schools and Workshops

COMBINE, University of Maryland
Remote

Net-COVID, Network Epidemiology in the time of Coronavirus — *2020*

- Project: Effect of voluntary distancing measures on the spread of SARS-CoV2 in Mexico City.
- Honorable Mention

University of Vermont and Laval University
Quebec City, Canada

Complex Networks Winter Workshop — *2018*

- Project: Corruption Networks.

Universidad de Buenos Aires
Buenos Aires, Argentina

SoFiA: School and Workshop on Data Analysis and Mathematical modeling of Social Sciences — *2016*

Universidad Nacional Autónoma de México
Mexico City, Mexico

Summer School on Sustainability Modeling — *2016*

Universidad Autónoma de la Ciudad de México
Mexico City, Mexico

First-Passage Processes and Biological Implications — *2015*

Colegio de México
Mexico City, Mexico

Demography Colloquium — *2013*

Profesional Experience

Data Scientist - STC   December 2020 – Present
The World Bank   *Washington, D.C., USA*
- Geospatial analysis and dashboard design of GPS data and expenditure to understand gaps in mobility reduction and economical activity patterns in different socioeconomic groups.

Graduate Research Assistant   August 2018 – Present
University of Vermont, Neurobotics Lab   *Burlington, VT, USA*
- Gamification for decision making analysis.
- Analysis and modeling of human behavior under events of distress (natural hazards and epidemics).
- Text classification for expressed needs during the Ebola outbreak in Sierra Leone.
- Analysis of the Prueba PLANEA for understanding achievement gaps in Mexico.
- Analysis of temporal correlations in human migration patterns.

Data Scientist Senior   August 2017 – August 2018
Ministry of Social Development (SEDESOL) and Inter-American Development Bank   *Mexico City, Mexico*
- Income estimation.
- Automated analysis for misreporting detection.
- Development of a tool for detection of irregularities in social programs.
- Build a unified PostgreSQL database for all the social programs under SEDESOL.
- Build R package to access the database.

Data Scientist Senior   August 2017 – August 2018
Presage Research   *Mexico City, Mexico*
- Build a reputation management tool for social media.
- Deep learning for oil leak detection.

Summer Research Internship   June 2017 – August 2017
Stevens Institute of Technology   *Hoboken, New Jersey, USA*
- Social media mining.
- Build a geospatial data base.
- Analysis of urban perception.
- Analysis of the correlation between caloric intake and social media usage.

Data Scientist   March 2017 – May 2017
Institute of Analytics   *Mexico City, Mexico*
- Comunity detection in social networks.
- Topic modeling of the Mexican entrepreneur network in social media.
- Complex network visualization.

Visiting Student Researcher   November 2015 – June 2017
National Institute of Genomic Medicine (INMEGEN)   *Mexico City, Mexico*
- Optimal percolation and community detection in genomic networks.

Undergraduate Research Assistant   August 2012 – May 2013
Nuclear Sciences Institute, UNAM   *Mexico City, Mexico*
- Research on UHECR production methods by extragalactic sources.
- Research on hadronic and leptonic models of the origin of cosmic rays.

Teaching Assistant   August 2012 – December 2017
Faculty of Sciences, UNAM   *Mexico City, Mexico*
- Analytical Geometry I
- Analytical Geometry II
- Computational Modeling of Complex Systems and Non-linear Dynamics
- Complex Networks
- Introduction to Programming

Honors and Awards

GCP credits award   2020
Google
  - Awarded with $800 USD worth in GCP credits for NLP research on COVID-19

Graduated with Honors   2018
MSc, Data Science, ITAM

Ex-ITAM Research Prize   2018
Best Research Thesis, ITAM

NumFOCUS Travel Grant   2018
Financial aid for academic travel in Summer 2018

CONICET Travel and Tuition Grant   2016
Financial aid for academic travel and tuition in Winter 2016

Research Articles

  - Skrip, Laura A., Jamie Bedson, Sharon Abramowitz, Mohammed B. Jalloh, Saiku Bah, Mohamed F. Jalloh, Ollin Demian Langle-Chimal, Nicholas Cheney, Laurent Hébert-Dufresne, and Benjamin M. Althouse. "Unmet needs and behaviour during the Ebola response in Sierra Leone: a retrospective, mixed-methods analysis of community feedback from the Social Mobilization Action Consortium." The Lancet Planetary Health 4, no. 2 (2020): e74-e85.
  - Clark, Eric M., Scott C. Merrill, Luke Trinity, Gabriela Bucini, Nicholas Cheney, Ollin Langle-Chimal, Trisha Shrum, Christopher Koliba, Asim Zia, and Julia M. Smith. "Using experimental gaming simulations to elicit risk mitigation behavioral strategies for agricultural disease management." PloS one 15, no. 3 (2020): e0228983.

Invited Academic Presentations

Latin American Conference on Complex Networks   Cartagena, Colombia
Temporal Analysis of the Asylum Seekers Network (Comp Mass Migrations Satellite)   *2019*

Latin American Conference on Complex Networks   Cartagena, Colombia
Automated Anomaly Detection (Corruption Nets Satellite)   *2019*

UseR   Mexico City, Mexico
Julia and R Integration - The JuliaCall and RCall packages   *2018*

Contributed Academic Presentations

Conference on Complex Systems   Remote (Athens, Greece)
Educational gaps in Mexico: a causal inference approach (CS4MV satellite)   *2020*

NetSci   Remote (Rome, Italy)
Voluntary mobility and distancing measures decrease the spread of SARS-CoV2 in Mexico City *2020*

Latin American Conference on Complex Networks   Cartagena, Colombia
19S - Mexico's Resilience in an Earthquake Event   *2019*

NetSci   Burlington, Vermont
19S - Mexico's Resilience in an Earthquake Event (NS4SG satellite)   *2019*

JuliaCon   London, UK
Julia for Complex Network Analysis of Political Data   *2018*

Conference on Complex Systems   Cancun, Mexico
Dynamics of the Mexican Senate (Comp. Soc. Sc. satellite)   *2017*

Conference on Complex Systems   Cancun, Mexico
NER for inferring a Drug-Cartel Network (Comp. Soc. Sc. satellite)   *2018*

Poster Presentations

Latin American Conference on Complex Networks   Cartagena, Colombia
Gamification for Decision Making Analysis   *2019*

Conference on Complex Systems   Cancun, Mexico
Optimal Percolation of a Drug-Cartel Network   *2017*

Latin American Conference on Complex Networks   Puebla, Mexico
Optimal Percolation of a Drug-Cartel Network   *2017*

Latin American Conference on Complex Networks   Puebla, Mexico
Dynamics of the Mexican Senate   *2017*

Released Software

NetABM.jl   2020
Principal co-developer
- Network Agent Based Modeling framework for epidemiological and opinion dynamics.   [code]

Node2Vec.jl   2019
Principal developer
- Contextual node embedding for complex networks in Julia.   [code]

ComplexSystems.jl   2018
Principal developer
- Framework for modeling complex systems in Julia.   [code]

dbrsocial   2018
Principal developer
- Library for querying a social programs database. Commissioned by SEDESOL.

Journal Referee
- PLoS one

Committees
- Founding member, web developer and social media manager of the UVM's chapter and northeastern hub of the Society for Advancement of Chicanos/Hispanics and Native Americans in Science (SACNAS).

Skills and Advocacy

Languages: Spanish (native), English (proficient), French (beginner)
Computational Languages: Julia, Python, R, JavaScript, SQL, GraphQL, Cypher, Bash, LaTeX.
Frameworks: Jekyll, Hugo, D3, P5, React.
Developer Tools: Git, Docker, TravisCI, GCP, AWS, Spark, Neo4J, NeoVim.
Advocacy: Open science, open source, open data, equity, inclusion.