



# Luis Gascó

INTERDISCIPLINARY RESEARCHER

Madrid/Barcelona, Spain

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## Professional Summary

+8 years of experience analyzing urban and health data, and +5 years in the use of language technologies to extract information contained in texts. During my career, I have applied advanced machine learning, NLP and statistical technologies in the field of healthcare, environmental studies, and urban management to detect and solve problems in each domain. I am an enthusiast of using cutting-edge technologies to solve real-world problems, with a background in engineering complemented with knowledge of entrepreneurship, technology transfer and project management obtained in the framework of the EIT Digital Doctoral School. Throughout my career I have had the opportunity to work on international projects in countries such as France and the UK, as well as participating in international teams, which has given me a broad view for handling projects and a solid experience in multidisciplinary environments.

## Education

2016 - 2020	<b>PHD CERTIFICATION IN INNOVATION AND ENTREPRENEURSHIP</b>	<i>European Institute of Innovation and Technology</i>
2014 - 2019	<b>PHD IN ENGINEERING</b>	<i>ETSII. Universidad Politécnica de Madrid</i>
2015 - 2016	<b>MASTER IN BUSINESS INTELLIGENCE AND BIG DATA</b>	<i>Escuela de Organización Industrial (EOI)</i>
2013 - 2014	<b>MSC IN ACOUSTIC ENGINEERING IN INDUSTRY AND TRANSPORT</b>	<i>ETSII. Universidad Politécnica de Madrid</i>
2009 - 2013	<b>BSC IN SOUND AND IMAGE (TELECOMMUNICATION) ENGINEERING</b>	<i>ETSIST. Universidad Politécnica de Madrid</i>

## Experience

Dec 2020 - present <i>Barcelona, Spain</i>	<b>RESEARCH ENGINEER</b>	<i>Barcelona Supercomputing Center</i>
	<ul style="list-style-type: none"> <li>Worked within Martin Krallinger's research group with a primary focus on advancing the field of clinical Natural Language Processing (NLP) in the Spanish language.</li> <li>Development of neural entity linking systems for the Spanish language. These systems were designed to link biomedical mentions extracted from NERs to ontologies such as SNOMED-CT, ICD-10 or HPO, among others.</li> <li>Played a key part in making Gold Standard datasets and creating clear rules for Named Entity Recognition (NER) and Entity Linking. This work helped make evaluation standards consistent in the field.</li> <li>Actively engaged in seeking research funding, which involved finding partners and writing grant proposals. This included applying for funding from European Union's Horizon Program and the Spanish government's PERTE initiative.</li> <li>Actively participated in organizing and publishing results in shared-task challenges conducted within esteemed international conferences and workshops such as COLING, NAACL, CLEF, SEPLN, BioASQ, SMM4H, and IberLEF.</li> </ul>	
Sep 2020 - present <i>Madrid, Spain</i>	<b>LECTURER</b>	<i>Universidad Complutense de Madrid</i>
	<ul style="list-style-type: none"> <li>Lecturer of the Text Mining and Social Networks modules in the Master Big Data and Business Analytics and the Master Data Science and Big Data of the Universidad Complutense de Madrid.</li> <li>More than 500 students have been taught the basics of NLP techniques including data preprocessing, document representation and, text classification and topic modeling strategies.</li> </ul>	
Oct 2020 - Dec 2020 <i>Madrid, Spain</i>	<b>RESEARCH SCIENTIST</b>	<i>Universidad Politécnica de Madrid</i>
	<ul style="list-style-type: none"> <li>Development of time series clustering models using Deep Learning techniques for the Process-aware Analytics Support based on Conceptual Models for Event Logs (PACMEL) Project</li> </ul>	
Nov 2019 - May 2020 <i>Madrid, Spain</i>	<b>DATA SCIENTIST</b>	<i>Atos Research &amp; Innovation</i>
	<ul style="list-style-type: none"> <li>Design and implementation of a suite that integrates a set of open-source data analysis tools to incorporate and manage the machine learning lifecycle in the Urban Data Platform, the company's IoT solution.</li> <li>Use of the TensorFlow library to train time series prediction models from the sensor data distributed at the Mallorca airport, and deployment of the models on the platform.</li> <li>Collaboration in business consulting tasks such as the creation of business models to transfer the technologies developed in the European projects in the field of Computer Vision and Edge-Computing.</li> </ul>	

Sep 2013 - Oct 2019  
Madrid, Spain

#### RESEARCHER

Universidad Politécnica de Madrid

- Development of text mining models for the detection and classification of complaints about noisy activities in urban environments.
- Analysis and creation of prediction models from urban data.
- Development of platforms connected to open data databases for the visualization of environmental noise information.
- Statistical analysis of noise levels from smart city sensors and attitude surveys on noisy activities.
- Analysis of the ways of reporting noise data in major cities and international airports of Europe, USA, and Australia.
- Development of educational-app to prevent the risks associated to hearing losses in the work place.
- Implementation of algorithms of pattern recognition in a software tool used to identify aircrafts.
- Collaboration in consultancy works and various research projects.

Jul 2018 - Oct 2018  
Cambridge, UK

#### VISITOR RESEARCHER

Nokia Bell Labs

- Research stay at the Bell Labs, with 9 Nobel prizes, under the supervision of Daniele Quercia, Social Dynamics Department director
- I worked within one of the projects of the initiative goodcitylife.org, which seeks to solve urban problems using open data and AI.
- During this period I was involved in research activities focused on data mining of geographic social media and open data, and on the impact of noise on health in the city of London.

Sep 2017 - Dec 2017  
Paris, France

#### VISITOR RESEARCHER

Télécom-ParisTech

- Research stay in the S2A Team (Image, Data and Signal Department) under the supervision of Prof. Chloé Clavel
- I worked on topics related to opinion mining and NLP applied to detect noise attitudes from Online Social Networks
- During this period I was involved in research activities focused on pre-processing twitter texts, feature extraction (part-of-speech, statistical features, sentiment features, and word embeddings), short-text classification models, and noise taxonomy creation (using WordNet and DBPedia)

## Languages

SPANISH: NATIVE

ENGLISH: C1 (IELTS 6.5)

FRENCH: B1

## Skills

<b>Programming</b>	R, Python, LabVIEW, Matlab, Latex
<b>Database knowledge</b>	MongoDB, SQL
<b>Web development</b>	R-Shiny, Flask, Vue, REST API, mlFlow, AWS, Docker
<b>BI software</b>	Tableau, Pentaho, QlikVIEW
<b>Specific software</b>	IBM SPSS Statistics, Hadoop Environment, ArcGIS, Spark, National Instruments Environment

## Scientific publications

### JOURNAL PUBLICATIONS

1. Sigcha, L., Borzi, L., Amato, F., Rechichi, I., Ramos-Romero, C., Cárdenas, A., Gascó, L., & Olmo, G. (2023). Deep learning and wearable sensors for the diagnosis and monitoring of parkinson's disease: A systematic review. *Expert Systems with Applications*, 120541.
2. Lima-López, S., Farré-Maduell, E., Briva-Iglesias, V., Gasco-Sanchez, L., & Krallinger, M. (2023). MEDDOPLACE shared task overview: Recognition, normalization and classification of locations and patient movement in clinical texts. *Procesamiento Del Lenguaje Natural*, 71.
3. Miranda-Escalada, A., Farré-Maduell, E., Lima-López, S., Estrada, D., Gascó, L., & Krallinger, M. (2022). Mention detection, normalization & classification of species, pathogens, humans and food in clinical documents: Overview of the LivingNER shared task and resources. *Procesamiento Del Lenguaje Natural*, 69, 241–253.
4. Asensio, C., Aumond, P., Can, A., Gascó, L., Lercher, P., Wunderli, J.-M., Lavandier, C., Arcas, G. de, Ribeiro, C., Muñoz, P., et al. (2020). A taxonomy proposal for the assessment of the changes in soundscape resulting from the COVID-19 lockdown. *International Journal of Environmental Research and Public Health*, 17(12), 4205.
5. López, J. M., Alonso, J., Asensio, C., Pavón, I., Gascó, L., & Arcas, G. de. (2020). A digital signal processor based acoustic sensor for outdoor noise monitoring in smart cities. *Sensors*, 20(3), 605.
6. Gasco, L., Schifanella, R., Aiello, L. M., Quercia, D., Asensio, C., & Arcas, G. de. (2020). Social media and open data to quantify the effects of noise on health. *Frontiers in Sustainable Cities*, 2, 41.
7. Gasco, L., Clavel, C., Asensio, C., & Arcas, G. de. (2019). Beyond sound level monitoring: Exploitation of social media to gather citizens subjective response to noise. *Science of the Total Environment*, 658, 69–79.
8. Asensio, C., Gasco, L., De Arcas, G., López, J. M., & Alonso, J. (2018). Assessment of residents' exposure to leisure noise in Málaga (Spain). *Environments*, 5(12), 134.
9. Asensio, C., Gasco, L., & Arcas, G. de. (2017). A review of non-acoustic measures to handle community response to noise around airports. *Current Pollution Reports*, 3, 230–244.

10. Sigcha, L., Pavón, I., Gascó, L., González, J., Sánchez-Guerrero, J., & Buitrago, D. (2017). Risk perception associated with noise-induced hearing loss. State of the art and design of interactive tools for workers training and awareness. *Occupational Safety and Hygiene V*, 503–508.
11. Gasco, L., Asensio, C., & Arcas, G. de. (2017). Communicating airport noise emission data to the general public. *Science of the Total Environment*, 586, 836–848.
12. Asensio, C., Gasco, L., Ruiz, M., & Recuero, M. (2015). Implementation of a virtual laboratory for training on sound insulation testing and uncertainty calculations in acoustic tests. *The Journal of the Acoustical Society of America*, 137(2), 1012–1020.

## CONFERENCE PUBLICATIONS

1. Nentidis, A., Katsimpras, G., Krithara, A., López, S. L., Farré-Maduell, E., Gasco, L., Krallinger, M., & Paliouras, G. (2023). Overview of BioASQ 2023: The eleventh BioASQ challenge on large-scale biomedical semantic indexing and question answering. *arXiv Preprint arXiv:2307.05131*.
2. Lima-López, S., Farré-Maduell, E., Gascó, L., Nentidis, A., Krithara, A., Katsimpras, G., Paliouras, G., & Krallinger, M. (2023). Overview of MedProcNER task on medical procedure detection and entity linking at BioASQ 2023. *Working Notes of CLEF*.
3. Nentidis, A., Krithara, A., Paliouras, G., Gasco, L., & Krallinger, M. (2022). BioASQ at CLEF2022: The tenth edition of the large-scale biomedical semantic indexing and question answering challenge. *European Conference on Information Retrieval*, 429–435.
4. Nentidis, A., Katsimpras, G., Vandorou, E., Krithara, A., Miranda-Escalada, A., Gasco, L., Krallinger, M., & Paliouras, G. (2022). Overview of BioASQ 2022: The tenth BioASQ challenge on large-scale biomedical semantic indexing and question answering. *International Conference of the Cross-Language Evaluation Forum for European Languages*, 337–361.
5. Miranda-Escalada, A., Gascó, L., Lima-López, S., Farré-Maduell, E., Estrada, D., Nentidis, A., Krithara, A., Katsimpras, G., Paliouras, G., & Krallinger, M. (2022). Overview of distemist at bioasq: Automatic detection and normalization of diseases from clinical texts: Results, methods, evaluation and multilingual resources. *Working Notes of Conference and Labs of the Evaluation (CLEF) Forum. CEUR Workshop Proceedings*.
6. Weissenbacher, D., Banda, J., Davydova, V., Zavala, D. E., Sánchez, L. G., Ge, Y., Guo, Y., Klein, A., Krallinger, M., Leddin, M., et al. (2022). Overview of the seventh social media mining for health applications (#smm4h) shared tasks at coling 2022. *Proceedings of the Seventh Workshop on Social Media Mining for Health Applications, Workshop & Shared Task*, 221–241.
7. Gasco, L., Estrada-Zavala, D., Farré-Maduell, E., Lima-López, S., Miranda-Escalada, A., & Krallinger, M. (2022). Overview of the SocialDisNER shared task on detection of diseases mentions from healthcare related and patient generated social media content: Methods, evaluation and corpora. *Proceedings of the Seventh Social Media Mining for Health (#SMM4H) Workshop and Shared Task*.
8. Nentidis, A., Katsimpras, G., Vandorou, E., Krithara, A., Gasco, L., Krallinger, M., & Paliouras, G. (2021). Overview of bioasq 2021: The ninth bioasq challenge on large-scale biomedical semantic indexing and question answering. *Experimental IR Meets Multilinguality, Multimodality, and Interaction: 12th International Conference of the CLEF Association, CLEF 2021, Virtual Event, September 21–24, 2021, Proceedings 12*, 239–263.
9. Miranda-Escalada, A., Farré-Maduell, E., Lima-López, S., Gascó, L., Briva-Iglesias, V., Agüero-Torales, M., & Krallinger, M. (2021). The profner shared task on automatic recognition of occupation mentions in social media: Systems, evaluation, guidelines, embeddings and corpora. *Proceedings of the Sixth Social Media Mining for Health (#SMM4H) Workshop and Shared Task*, 13–20.
10. Gascó, L., Asensio, C., De Arcas, G., & Clavel, C. (2019). Evaluating noise perception through online social networks: A text mining approach to designing a noise-event alarm system based on social media content. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 259, 1767–1778.
11. Gascó, L., Asensio, C., De Arcas, G., & Clavel, C. (2019). Noytext: A web platform to annotate social media documents on noise perception for their use in opinion mining research. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 259, 1779–1786.
12. Gasco, L., Asensio, C., & De Arcas, G. (2017). Towards the assessment of community response to noise through social media. *INTER-NOISE and NOISE-CON Congress and Conference Proceedings*, 255, 2209–2217.
13. Pavón García, I., Gascó Sánchez, L., González, J., Sánchez-Guerrero, J., Sigcha, L., & Buitrago, D. (2016). *Percepción de los riesgos asociados a la pérdida auditiva inducida por ruido. Estado del arte y diseño de herramientas interactivas para formación y concienciación*.
14. Asensio, C., De Arcas, G., López, J. M., Pavón, I., & Gascó, L. (2015). Awareness: A parallel approach against noise. *Proceedings of the 22nd International Congress on Sound and Vibration (ICSV 22), Florence, Italy*, 12–16.

## Software

<b>Scilinker</b>	SciLinker is an application for creating training datasets to generate entity linking models. It leverages neural models for candidate generation, as well as incorporating user management capabilities, IAA agreement, annotation project management and data loading.
<b>Reecapi</b>	This Python package provides a list of functions to facilitate access to the data offered by Registro Español de Estudios Clínicos in its REST API.
<b>Open Noise Monitoring Network</b>	In the Open Noise Monitoring Network we are developing a set of connectors to several open data platforms in order to acquire, standardize, and store the environmental noise data, to provide them to stakeholders.
<b>Noytext</b>	An open source application whose main objective is to facilitate the annotation of short texts. The application, developed using the R-shiny framework, tries to reduce the entry barrier in the application of NLP technologies in environmental acoustics branch.
<b>Openskyr</b>	R-library that provides a list of functions to facilitate access to the data offered by OpenSky-Network in its REST API.
<b>Deepspanorm</b>	Deepspanorm is a python library to simplify the training of biencoder and crossencoder architectures that can be used for entity linking tasks with controlled terminologies such as snomed-CT, HPO, ICD or UMLS. The library incorporates a simple interface to generate triples for use in training models with constrastive learning techniques, as well as functions to put them into production and evaluate the models.

## Complementary training

Aug.2023	LangChain for LLM Application Development	<a href="#">deeplearning.ai</a>
Aug.2023	Finetuning Large Language Models	<a href="#">deeplearning.ai</a>
May.2023	Research Data Management for Beginners	<a href="#">Barcelona Supercomputing Center</a>
Mar.2023	Introduction to HPC for Life Scientists	<a href="#">Barcelona Supercomputing Center</a>
Feb. 2022	Natural Language Processing with Sequence Models	<a href="#">Coursera - deeplearning.ai</a>
Jan.2022	Natural Language Processing with Probabilistic Models	<a href="#">Coursera - deeplarning.ai</a>
Jun. 2021	Introduction to Software licenses	<a href="#">Barcelona Supercomputing Center</a>
Mar. 2021	IP Management for Researchers	<a href="#">Barcelona Supercomputing Center</a>
Apr. 2020	Scrum Framework Path - Beginner	<a href="#">Pluralsight</a>
Nov. 2019 - Jan. 2020	Tensorflow in Practice specialization	<a href="#">Coursera - deeplarning.ai</a>
Apr. 2019	Taller de comunicación científica en radio y televisión	<a href="#">Unidad de Cultura Científica UPM</a>
Sep.-Oct. 2018	Growth & Harvest (Business Strategy Growth)	<a href="#">EIT Digital Doctoral School (Trento)</a>
Jan.-Mar. 2018	Business Modeling Development	<a href="#">EIT Digital Doctoral School (Rennes)</a>
Ap. 2017	International negotiation	<a href="#">EIT Digital Doctoral School (Madrid)</a>
Jan.-Feb. 2017	Introduction to technology watch and competitive intelligence	<a href="#">EIT Digital Doctoral School (Madrid)</a>
Oct. 2016	Raising I&E Awareness	<a href="#">EIT Digital Doctoral School (Madrid)</a>
Feb. 2016	Introduction to Data Governance	<a href="#">LinkedIn</a>
Jan. 2016	Machine Learning With Big Data	<a href="#">Coursera - University of California, San Diego</a>
Dec. 2015	Formación en emprendimiento	<a href="#">Google Activate (Madrid)</a>
Dec. 2015	Introduction to Big Data Analytics	<a href="#">Coursera - University of California, San Diego</a>
Oct. 2015 - Mar. 2019	Data Science Courses	<a href="#">Datacamp.com</a>
Oct. 2015	Responsive Website basics: HTML, CSS, Javascript	<a href="#">Coursera - University of London &amp; Goldsmiths</a>
Mar. 2013	Multimedia Indexing and Retrieval	<a href="#">Télécom ParisTech</a>

## Honors & Awards

- 2021 Extraordinary Doctoral Thesis Award of the Universidad Politécnica de Madrid
- 2019 Prize “Catedra Luis de Camoens UC3M” to the best scientific communication presented by a young researcher at Internoise 2019 (Madrid)
- 2019 Travel Grant for Young Acousticians for the congress Internoise 2019 (Madrid)
- 2018 Invited talk at the EIT Digital Doctoral School Digital Cities Workshop (Madrid)
- 2018 Co-organizer of the EIT Digital Doctoral School - Digital Cities Workshop (Madrid)
- 2018 Invited speaker at the EIT Digital Summer School “Predictive Analytics” (Rennes)
- 2018 Award to the best speaker in the 2nd Symsium “Cuentanos tu tesis” - Universidad Politecnica de Madrid
- 2017 Participation in the creation of the guide “Datos Abiertos FEMP. Conjunto de datos mínimos a publicar.”
- 2017 Invited paper at InterNoise 2017 (Hong Kong)
- 2014 Scholarship to attend the congress Tecniacústica 2014 (Murcia)

## Previous Experience

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May 2013 -  
Jul 2013 Grant holder, UPM-CSIC, Madrid, Spain