Uzmar de Jesús Gómez Yáñez

Curriculum Vitae

MSc Scientific Computing and Data Analysis

Personal Statement

Learned to program throughout the Physics career, mainly in scientific computing topics. Hands-on experience applying Machine Learning algorithms to real business problems. Excellent usage of GNU / Linux systems and knowledge of object-oriented programming languages such as Python and C++. I have also worked in the academic field as a teacher assistant, teaching mathematics, computer science, physics and other topics at a university level. Good understanding of algorithms, data structures, bayesian statistics, etc.

Personal Data

Address:	Durham, England
Phone:	+44 7704 613361
email:	uzmar.gomez@ciencias.unam.mx
LinkedIn:	www.linkedin.com/in/uzmargomez
Github:	https://github.com/uzmargomez

Education

Present — **MSc in Scientific Computing and Data Analysis**, Department of Computer Science, Durham University, Durham, United Kingdom.

2021
Specialization: Earth and Environmental Sciences
Overall Score: -
Dissertation: *"GPU Programming with Standard C++"*
Description:

Detailed List of Grades

2018 — **BSc in Physics**, Faculty of Science, National Autonomous University of Mexico (UNAM), Mexico City, Mexico.

2011
Dissertation: *"Numerical Study of Vlasov Equation in the Schwarzschild Metric"*
Description: Creation of a finite differences scheme that evolves the relativistic Vlasov equation on a black hole metric background, assuming this is an advective equation, with velocities dependent both on time and position.
Advisor: Dr. Miguel Alcubierre

Overall Score: 9.37/10

Detailed List of Grades

Computer Skills

Programming Languages	Python, C++, Fortran, Julia
Machine/Deep Learning	TensorFlow, Keras, PyTorch, Facebook Prophet, ARIMA, SARIMA, LDA, PCA, Kmeans, KNN, Neural Networks, Recommendation systems, Classification and Regression problems
Serving	Seldon Core, TFServing
Databases	SQL, MongoDB
Containers	Docker, Kubernetes
Operating Systems	GNU/Linux, Windows
Web Backend	Flask
Web Frontend	HTML (Plotly Dash), Bootstrap
Version Control	Git
Parallel Computing	C++ Standard Algorithms, CUDA Python
Data Visualization	Plotly Dash, Qlik, Tableau
GCP Tools (Console and CLI)	BigQuery, BQ ML, Compute Engine, Composer, Artifact Registry, Kubernetes Engine, Storage, Data Studio, Kubeflow, Data Fusion, Cloud Build, VertexAI

Languages

English:	C1 Level - IELTS (2021)
Spanish:	Mothertongue
French:	Basic

Interests and Activities

Academic

Data Science, Machine Learning, Deep Learning, Numerical Analysis, General Relativity, Numerical Relativity, Black Holes.

Non academic

Science Fiction and Fantasy Reading, Videogames, Running, Swimming, Playing Guitar, Traveling.

Experience

Short Description

Jul 2020 - Jan 2022. Data Scientist at Rackspace Technology. I helped on the migration of data from on-premises servers to the GCP cloud. I worked on churn prediction models that used features related to the COVID19 spreading aside from other business-related features to predict customer attrition, this work includes the development of the model using XGBoost, as well as the deployment of it using Kubeflow and the serving via Seldon Core. I was also involved in constructing an SSAS OLAP Cube to be used by the company for inventory-related queries. I worked on NLP tasks, such as the extraction of themes out of tickets using semantic similarity, by getting embeddings vectors out of sentences with a transformer architecture named Universal Sentence Encoder. Worked on how to translate voice to text. I built two production-level applications using Plotly Dash.

Dec 2019 - Jun 2020. Data Scientist at Softtek. I worked on a face recognition system using a method called Sparse Representation and another one using Neural Networks. I acquired a deep understanding of Neural Networks for Face Detection and Recognition, Image Classification, Language Processing, among others, as well as some experience in Data Visualization tools such as Tableau.

Sep 2019 - Dec 2019. Data Scientist Trainee at Softtek. I learned about different statistical and machine learning techniques, as well as algorithms, to study a wide variety of problems.

2016 - 2019. As mentioned below, I have taught Computer Science classes, in which the Python programming language was introduced to Physics students.

Sep 2018 - Dec 2019. I have research experience using the Einstein Toolkit, a software platform created for supporting research in relativistic astrophysics and gravitational physics.

Subjects I have taught:

- Computer Science.
  https://web.fciencias.unam.mx/asignaturas/102.pdf
- Selected Topics in Relativity, Cosmology and Gravitation 1.
  https://web.fciencias.unam.mx/docencia/horarios/presentacion/295997
- Relativity
  https://web.fciencias.unam.mx/asignaturas/718.pdf
- Mathematics I for Applied Sciences.
  http://www.fciencias.unam.mx/asignaturas/1118.pdf
- Mathematics II for Applied Sciences.
  http://www.fciencias.unam.mx/asignaturas/1216.pdf

Extra Curricular Activities

Present Oct 2021	Student Representative MiSCaDA Programme **Durham University** Provide a link between students and the University Staff. Sit on the Student/Staff Committee to discuss issues within the department raised by the students

Volunteer Activities

May 2022 – Jan 2022 | Volunteer
Durham Foodbank
Assisted with the distribution of food to people in need.

Dec 2021 – Jun 2021 | Teacher
Casa de la Sal
Support children with HIV on various Mathematics and English Language assignments.

Sep 2019 – Mar 2019 | Teacher
University Student Council (CEU México)
Provide tools to university students to help develop their academic, professional and personal skills, to facilitate their employment and the definition of their life project.

Mar 2019 – Sep 2018 | Volunteer
Adopt a Talent Program (PAUTA)
Encourage scientific vocation so that those children and adolescents who like science and have outstanding skills, find a space where they can share their interest and learn from each other.

Professional Membership

Sep 2019 – Jan 2017 | Fellow
Thematic Network of Black Holes and Gravitational Waves (Red ANyOG, CONACYT).

Dec 2019 – Jan 2016 | Student Associate
Institute of Nuclear Sciences, UNAM.

Jan 2016 – Jan 2015 | Student Associate
Institute of Physics, UNAM.

Presentations and Poster Sessions

Oct 11, 2017 | Poster Presentation at LX National Congress of Physics.
Monterrey, Mexico
Presentation of a poster about my undergraduate thesis "Numerical Study of Vlasov Equation in the Schwarzschild Metric".

Scholarships, Awards, Honors and Accomplishments

2017 – 2016 | Scholarship awarded for Conclusion of Proyect
Support Program for Research Projects and Technological Innovation (PAPIIT).

2016 – 2015 | Scholarship awarded for Conclusion of Undergraduate School
Support Program for Research Projects and Technological Innovation (PAPIIT).

References

Name: Dr. Tobias Weinzierl
Occupation: Professor in the Department of Computer Science at Durham University
LinkedIn: tobias.weinzierl@durham.ac.uk

Name: Dr. Charles Mueller
Occupation: Senior Engineer at Amazon
LinkedIn: https://www.linkedin.com/in/charles-n-mueller/

Name: Dr. Fernando Herrera
Occupation: Senior Data Engineer at Revolut
LinkedIn: https://www.linkedin.com/in/fernando-jose-herrera-elizalde-76a32790/

Name: Dr. Miguel Alcubierre
Institution Name: Institute of Nuclear Sciences, UNAM.
Occupation: Director, Researcher, Teacher
email: malcubi@nucleares.unam.mx

Updated on August 8, 2022

Master of Science in Scientific Computing and Data Analysis

Durham University

Grades

Course	Grade	Credits
Project		60
Professional Skills	7.92	15
Core Ia: Introduction to Machine Learning and Statistics	9.15	15
Core Ib: Introduction to Scientific and High-Performance Computing	7.95	15
Performance Engineering and Advanced Algorithms	7.5	15
Advanced Statistics and Machine Learning: Foundations and Unsupervised Learning	9.0	15
Advanced Statistics and Machine Learning: Regression and Classification	9.15	15
Earth and Environmental Sciences	6.76	30
	Total Credits	180
	Overall Score	-

Bachelor of Science in Physics

National Autonomous University of Mexico (UNAM)

Grades

Course	Grade	Credits
Differential and Integral Calculus I	07	18
Algebra	10	10
Computer Science	10	6
Analytic Geometry I	08	10
Differential and Integral Calculus II	10	18
Contemporary Physics	09	6
Vector Mechanics	9	12
Analytic Geometry II	09	10
Mechanics Laboratory	10	6
Collective Phenomena	10	12
Collective Phenomena Laboratory	09	6
Linear Algebra I	10	10
Differential Equations I	08	10
Optics	09	12
Linear Algebra II	10	10
Differential and Integral Calculus III	07	18
Electromagnetism I	9	12
Electromagnetism Laboratory	10	6
Tensor Calculus	9	10
Differential and Integral Calculus IV	07	18
Introduction to Quantum Physics	10	12
Optics Laboratory	10	6
Thermodynamics	09	12
Advanced Mathematics of Physics	10	10
Computational Physics	10	12
Quantum Mechanics	09	12
Complex Variable I	10	10
Selected Topics of Mathematics and Theoretical Physics	10	6
Electromagnetism II	08	12
Electronics Laboratory	10	6
Statistical Physics	10	12
Contemporary Physics Laboratory I	10	6
Complex Variable II	10	10
Analytical Mechanics	10	12
Relativity	09	06
Introduction to Elementary Particle Physics I	10	06
Dynamics of Deformable Bodies	10	12
Atomic Physics and Condensed Matter	09	06
Nuclear and Subnuclear Physics	09	06
Contemporary Physics Laboratory II	10	06
Topology and Differential Geometry for Physics	10	06
Selected Topics of Relativity, Cosmology and Gravitation I	10	06
Selected Topics of Computational Physics I	10	06
English Language	AC	00
	Total Credits	418
	Overall Score	**9.37**