Uzmar de Jesús Gómez Yáñez

Curriculum Vitae

First two pages are the most important ones

Personal Statement

I learned to program throughout my career in Physics, mainly in topics of numerical analysis. However, I discovered areas such as deep learning and data analysis that soon caught my interest, so I decided to pursue a master's degree in computer science in the near future. I know how to use GNU / Linux systems and I have knowledge of several programming languages such as Python and C++. I have worked both in the academic field but also as a Machine Learning Engineer/Data Scientist, and I have a deep understanding on algorithms and data structures.

Personal Data

Address:	Mexico City, Mexico
Phone:	+52 5539347885
email:	uzmar.gomez@ciencias.unam.mx
LinkedIn:	www.linkedin.com/in/uzmargomez
Github:	https://github.com/uzmargomez
HackerRank:	https://www.hackerrank.com/uzmar_gomez
Important Documents:	Dropbox Carpet

Education

Physics

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

2011 | Thesis: *"Numerical Study of Vlasov Equation in the Schwarzschild Metric"*

Description: We used a finite differences scheme that evolves the relativistic Vlasov equation on a background black hole metric, 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 Science

2010 | **Technical Career in Computer Science**, ENP Nº 7 National Autonomous University of Mexico (UNAM), Mexico City, Mexico.

2008 | Overall Score: 9.1/10 | Detailed List of Grades

Computer Skills

Programming Languages	Python, C/C++, Fortran, Julia, Go
Machine/Deep Learning	TensorFlow, Keras, PyTorch, Time Series analysis (Facebook Prophet), LDA, PCA, Recommendation systems, Classification problems
Databases	MySQL, MongoDB
Containers	Docker, Kubernetes
Operating System	Debian GNU/Linux, Ubuntu GNU/Linux, Windows
Web Backend	Flask
Web Frontend	HTML, Bootstrap
Version Control	Git
Parallel Computing	CUDA C/C++, CUDA Python
Data Visualization	Tableau

Languages

English:	B2 Level, IELTS (2018)
Spanish:	Mothertongue

Interests and Activities

Academic

Data Science, Machine Learning, Deep Learning, Numerical Analysis, Competitive Programming, General Relativity, Numerical Relativity, Gravitational Waves, Black Holes, Quantum Mechanics, Computer Science, Electromagnetism.

Non academic

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

Experience

Short Description

Dec 2019 - Present. I have been working on a face recognition system using a method called Sparse Representation alongside with Neural Networks. I have aquired a deep understanding of Neural Networks for Face Detection and Recognition, Image Classification, Language Processing, among others. Also, I have some experienced in Data Visualization using 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 range of problems.

2012 - 2019. Throughout my career I have programmed, mainly in Python and C ++, but also in Julia, Matlab, etc., for different purposes, such as carrying out tasks and projects (in particular in the subjects of Computational Physics and Selected Topics of Computational Physics). As mentioned below, I have taught Computer Science classes, in which the Python programming language was introduce to Physics students.

2014 - 2015. I helped in the administration of the Mechanical Laboratory of the Faculty of Engineering database, at the UNAM, solely with the objective of learning. SQL was used for this purpose.

Sep 2018 - Dec 2019. Regarding research, I have experience using the Einstein Toolkit, this being a platform of software tools created with the aim of advancing and supporting research in relativistic astrophysics and gravitational physics. It allows the study of topics such as the collision of black holes, relativistic hydrodynamics, etc. This tool, although based on C ++ and Fortran, uses Python as an assembler of the different pieces.

Related to the 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

Technical

Dec 2019 Sep 2019	Data Scientist Trainee at Softtek Mexico City, Mexico.
Sep 2009 Jun 2009	Computer Technician at General Direction of Community Services Mexico City, Mexico.

Vocational

Semester 2019-2	Teacher Assistant B at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Mathematics II for Applied Sciences	| MSc. Alejandro Villarreal
Semester 2019-1	Teacher Assistant B at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Selected Topics in Relativity, Cosmology and Gravitation I	| Dr. Miguel Alcubierre
	○ Mathematics I for Applied Sciences	| MSc. Alejandro Villarreal
Semester 2018-2	Teacher Assistant B at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Relativity	| Dr. Miguel Alcubierre
	○ Mathematics II for Applied Sciences	| MSc. Alejandro Villarreal
Semester 2018-1	Teacher Assistant B at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Relativity	| Dr. Miguel Alcubierre
	○ Mathematics I for Applied Sciences	| MSc. Alejandro Villarreal
Semester 2017-2	Teacher Assistant A at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Mathematics II for Applied Sciences	| MSc. Alejandro Villarreal
Semester 2017-1	Teacher Assistant A at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Mathematics I for Applied Sciences	| MSc. Alejandro Villarreal
	○ Computer Science	| MSc. Alejandro Villarreal
Jun 2017	Teacher at Coordination of Programs of Differentiated Attention for Students, Faculty of Engineering, UNAM Mexico City, Mexico.	
	○ Electrodynamics with an introduction to special relativity	| Eng. Raúl Puente
Semester 2016-1	Teacher Assistant A at Faculty of Science, UNAM Mexico City, Mexico.	
	○ Mathematics I for Applied Sciences	| MSc. Alejandro Villarreal

Conferences, Courses, Schools and Workshops Attended

Computer Science Related

May 04, 2020 Mar 04, 2020	**Course**. *AI & Deep Learning with TensorFlow* (EDUREKA) Edureka! For Business https://www.edureka.co/lms/certificate/c3d0ebdc5518b429f6cc1a009454a9df
Mar 26, 2020 Ago 04, 2019	**Specialization**. *Accelerated Computer Science Fundamentals* (COURSERA) University of Illinois at Urbana-Champaign https://www.coursera.org/account/accomplishments/specialization/certificate/DRF2CVM7P7FB
Mar 26, 2020 Sep 15, 2019	**Course**. *Unordered Data Structures* (COURSERA) University of Illinois at Urbana-Champaign https://www.coursera.org/account/accomplishments/certificate/DFHE5FBHVAAD
Mar 04, 2020 Feb 10, 2020	**Course**. *Python Statistics for Data Science Course* (EDUREKA) Edureka! For Business https://www.edureka.co/lms/certificate/8a0976c4e21d5bee00ff053e2d8e3f3e

Sep 15, 2019 – Ago 11, 2019
Course. *Ordered Data Structures* (COURSERA)
University of Illinois at Urbana-Champaign
https://www.coursera.org/account/accomplishments/certificate/PZ9NABHA7XBY

Ago 11, 2019 – Ago 04, 2019
Course. *Object-Oriented Data Structures in C++* (COURSERA)
University of Illinois at Urbana-Champaign
https://www.coursera.org/account/accomplishments/certificate/2YKURK8TJJ5B

Jul 29, 2019 – Jun 02, 2019
Course. *Algorithmic Toolbox* (COURSERA)
University of California San Diego, National Research University Higher School of Economics
https://www.coursera.org/account/accomplishments/certificate/FBZ5SK3E9BB6

Apr 17, 2019 – Apr 03, 2019
Course. *Operating Systems and You: Becoming a Power User* (COURSERA)
Grow with Google, Mexico City, Mexico.
https://www.coursera.org/account/accomplishments/certificate/V6STDES4HLPE

Apr 17, 2019 – Apr 03, 2019
Course. *Operating Systems and You: Becoming a Power User* (COURSERA)
Grow with Google, Mexico City, Mexico.
https://www.coursera.org/account/accomplishments/certificate/V6STDES4HLPE

Mar 10, 2019 – Mar 08, 2019
Course. *Python Data Structures* (COURSERA)
University of Michingan, Michigan, United States.
https://www.coursera.org/account/accomplishments/certificate/L6Y7MZQDAJHP

Feb 26, 2019 – Feb 21, 2019
Course. *Programming for Everybody (Getting Started with Python)* (COURSERA)
University of Michingan, Michigan, United States.
https://www.coursera.org/account/accomplishments/certificate/CNNYCJB5YB46

Feb 14, 2019 – Feb 03, 2019
Course. *Technical Support Fundamentals* (COURSERA)
Grow with Google, Mexico City, Mexico.
https://www.coursera.org/account/accomplishments/certificate/YQRPQLC86CUM

Feb 5, 2019 – Feb 3, 2019
Course. *Introduction to Data Science: Statistical Programming with R* (COURSERA)
National Autonomous University of Mexico, Mexico City, Mexico.
https://www.coursera.org/account/accomplishments/certificate/E75DVAG2956T

Jun 13, 2018 – Jun 9, 2018
School. *Deep Learning and Multimessenger Astronomy*
Tecnológico de Monterrey, Guadalajara, Mexico.

Jan 27, 2017 – Jan 16, 2017
Course. *Basic Linux*
Faculty of Engineering UNAM, Mexico City, Mexico.

Jul 01, 2016 – Jun 20, 2016
Course. *Fortran Fundamentals*
Faculty of Engineering UNAM, Mexico City, Mexico.

Physics Related

Nov 11, 2018 – Nov 9, 2018 | **School**. *Third Meeting of the Thematic Network of Black Holes and Gravitational Waves*.
Playa del Carmen, Quintana Roo, Mexico.

Nov 9, 2018 – Nov 5, 2018 | **School**. *Third School of Relativity and Gravitational Waves. XII School of the Division of Gravitation and Mathematical Physics*.
Playa del Carmen, Quintana Roo, Mexico.

Aug 12, 2017 – Aug 10, 2017 | **Workshop**. *Fifth Gravitation and Cosmology Workshop*.
Institute of Physical Sciences UNAM, Cuernavaca, Mexico.

Aug 9, 2017 – Aug 7, 2017 | **School**. *Second School of Relativity and Gravitational Waves*.
Institute of Physical Sciences UNAM, Cuernavaca, Mexico.

Jan 18, 2016 – Jan 7, 2016 | **Course**. *Introduction to Relativistic Electrodynamics*
Faculty of Engineering UNAM, Mexico City, Mexico.

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.

Volunteer Activities

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

Mar 2019 – Sep 2018 | Volunteer
Adopt a Talent Program (PAUTA)
Encourage scientific vocations so that those children and adolescents who like science, as well as those with outstanding skills, find a space where they can share their interest and develop skills that allow them to strengthen their scientific vocation.

Presentations and Poster Sessions

Oct 11, 2017 | Poster Presentation at LX National Congress of Physics.
Monterrey, Mexico
I presented 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. Fernando José Herrera Elizalde
Institution Name: Softtek, Mexico
Occupation: Senior Data Scientist
email: fernandoj.herrera@softtek.com

Name: Dr. Alejandro Villarreal
Institution Name: Faculty of Science, UNAM.
Occupation: Researcher, Teacher
email: alejandro.v@ciencias.unam.mx

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

Updated on May 4, 2020

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**

Technical Career in Computer Science

National Autonomous University of Mexico (UNAM)

Grades

Course	Grade
Introduction to Computer Science	9
Operating Systems	10
General Use Aplications	9
Problem Solving and Programming Techniques	9
Structured Programming	10
Event-Oriented Programming	9
Systems Analysis and Design	10
Database-Oriented Programming	6
Local Area Networks	9
Preventive Maintenance and Minor Corrections for PC's	10
Overall Score	**9.1**