Andrés Herrera Poyatos

Curriculum Vitae

Personal Information

Fist name: Andrés
Last name: Herrera Poyatos
Date of birth: August 9th, 1995
Address: Nº 48 La Yedra Street, La Zubia, Granada, 18140, Spain
Email: andreshp9@gmail.com
Mobile number: +34 680 44 16 06

Education

2009-2013 **Estalmat**, *SAEM Thales*, University of Granada, Granada, Spain.
A project to detect and stimulate the precocious mathematical talent.

2011-2013 **High School**, *IES Trevenque*, La Zubia, Granada, Spain.
- High school grade – Cum Laude (top 5 best students of the year).
- Access to university grade – 13.63 / 14 (13.63 out of 14).

2013-Present **Double Bachelor's degree in Computer Science and Mathematics**, *University of Granada*, Granada, Spain.
The double bachelor's degree lasts 5 years and contains the subjects studied in both bachelor degrees. Each year we complete 72 ECTS credits, divided into 12 different subjects. The following table summarizes my university grades (each subject's grade is presented in the appendix).

Degree	Number of studied subjects	Average grade	Number of Cum Laude grades
Computer Science	19	9.442 / 10	13
Mathematics	17	9.835 / 10	14

Experience

October 2015 – July 2016 **Research training contract on metaheuristics and software development**, *Fundación General Universidad de Granada - Empresa*.
Computational Intelligence techniques applied to the development of optimization algorithms for resource scheduling on bus and coach companies.

20th August 2016 - 20th September 2016 **Internship at Max Planck Institute for Mathematics - Bonn**, Advisor: Pieter Moree.
Research in evaluating cyclotomic polynomials at roots of unity. Applications to cyclotomic numerical semigroups.

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+34 680 44 16 06 • +34 958 59 07 85 • andreshp9@gmail.com
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Publications

Journals

- Siham Tabik, Daniel Peralta, Andrés Herrera-Poyatos and Francisco Herrera. *A snapshot of image pre-processing for convolutional neural networks: case study of MNIST*. International Journal of Computational Intelligence Systems, 2017, vol. 10, no. 1, pp. 555 – 568.
- Bartłomiej Bzdęga, Andrés Herrera-Poyatos and Pieter Moree. *Cyclotomic polynomials at roots of unity*. Uploaded to arXiv on 21th November, 2016, arXiv:1611.06783. Submitted to Acta Arithmetica on 11th January, 2017.
- Andrés Herrera-Poyatos and Francisco Herrera. *Genetic and Memetic Algorithm with Diversity Equilibrium based on Greedy Diversification*. Uploaded to arXiv on 13th February, 2017.

Conferences

- Andrés Herrera-Poyatos and Francisco Herrera. *Algoritmo Genético con Diversificación Voraz y Equilibrio entre Exploración y Explotación (Genetic Algorithm with Greedy Diversification and Equilibrium between Exploration and Exploitation)*. 10th Spanish Conference on Metaheuristics, Evolutionary and Bio-inspired Algorithms (*MAEB 2015*), pp. 9–18, 2015.
- Andrés Herrera-Poyatos and Francisco Herrera. *Algoritmo Memético Equilibrado con Diversificación Voraz. (Memetic Algorithm with Diversity Equilibrium based on Greedy Diversification)*. 16th National Conference on Artificial Intelligence: 2nd Workshop on Metaheuristics and Evolutionary Algorithms (*JAEM 2015*), pp. 219–229, 2015.
- Daniel Peralta, Andrés Herrera-Poyatos and Francisco Herrera. *Un Estudio sobre el Preprocesamiento para Redes Neuronales Profundas y Aplicación sobre Reconocimiento de Dígitos Manuscritos. (A Study on Data Preprocessing for Deep Neuronal Network and its Application to Handwriting Digit Recognition)*. 17th National Conference on Artificial Intelligence (*CAEPIA 2016*), pp. 867–876, 2016.

Courses

2014   **Practical data science and big data: Knime, R, Hadoop and Mahout tools**, *International University of Andalucía (UNIA)*, Baeza, Grade 10 / 10.

2015   **R Programming**, *Coursera*, Johns Hopkins University, Average grade – 100.0 %. Verified Statement with Distiction.

2015   **Algorithms: Design and Analysis, Part 1**, *Coursera*, Stanford University, Average grade – 98.0 %. Statement of Accomplishment.

Awards

2009   Top 5 in XXV Thales Mathematics Olympiad - Granada (12 – 13 years old). Classified for the regional phase in Andalucía.

2009   Selected for ESTALMAT - Andalucía, a project to detect and stimulate the precocious mathematical talent.

2011   2nd place - I Short Story Competition, "Al borde de lo inconcedible", Villa de la Zubia.

2012   1st place - II Short Story Competition, "Al borde de lo inconcedible", Villa de la Zubia.

2013   4th place - XXIV Spanish Physics Olympiad - Local Phase in Granada province.

2013   1st place - XLIX Spanish Mathematics Olympiad - Local Phase in Granada province.

2013   Top 12 - XLIX Spanish Mathematics Olympiad - Regional Phase in Andalucía. Classified for the XLIX Spanish Mathematics Olympiad - National Phase.

2013   Honourable Mention to the Best High School Academic Record in La Zubia, Granada, Spain.

2013   Award Top 10 students with highest grades in Granada province - University Access Exam.

Languages

Spanish **Mothertongue**

English **Cambridge English: Advanced (CAE)**

Interests

Topics on which I am interested and some related links.

- Research in mathematics and computer science. You can find me in Scholar Google and Research Gate.
- Mathematics and computer science dissemination. I write for LibreIM's blog, http://tux.ugr.es/libreim/blog/. I have written the following posts:
  - Algoritmos Genéticos (Genetic Algorithms).
  - Problemas – Fibonacci GCD (Problems – Fibonacci GCD). Written in collaboration with Mario Román.
  - Teorema de Dini (Dini's theorem).
  - Segment trees and Range minimum query.
- Algorithms competitions. I have participated in some Hackerrank's competitions, you can see my profile in https://www.hackerrank.com/andreshp.
- Open source. You can find my open source projects in https://github.com/andreshp/, which range from latex templates and class notes to terminal commands and several algorithms implementations.

Appendix: University Subjects Grades

Subjects grades in Computer Science Degree

Subject	Grade	Qualification
Fundamentals of Programming	10	Cum Laude
Fundamentals of Software	9.6	Cum Laude
Fundamentals of Physics and Technologies	10	Cum Laude
Logic and Discrete Methods	10	Cum Laude
Programming Methodology	10	Cum Laude
Computers Technology	9.6	Excellent
Data Structures	10	Cum Laude
Computer Structures	9.6	Cum Laude
Operating Systems	9.2	Excellent
Algorithms	9.4	Cum Laude
Computer Architecture	9.5	Cum Laude
Object-Oriented Programming and Design	9	Cum Laude
Fundamentals of Data Bases	9.1	Cum Laude
Fundamentals of Computer Networks	7.6	Good
Models of Computation	10	Cum Laude
Concurrent and Distributed Systems	9.3	Excellent
Fundamentals of Software Engineering	7.5	Good
Artificial Intelligence	10	Cum Laude
Servers Engineering	10	Excellent

Subjects Grades in Mathematics Degree

Subject	Grade	Qualification
Calculus I	10	Cum Laude
Geometry I	10	Cum Laude
Calculus II	10	Cum Laude
Geometry II	10	Cum Laude
Descriptive Statistics and Introduction to Probability	9.8	Cum Laude
Numerical Methods I	9.8	Cum Laude
Analysis I	9.8	Cum Laude
Topology I	10	Cum Laude
Algebra I	10	Cum Laude
Analysis II	10	Cum Laude
Geometry III	9.8	Excellent
Mathematical Models I	10	Cum Laude
Differential Equations I	9	Excellent
Probability	9.5	Excellent
Numerical Methods II	9.5	Cum Laude
Complex Analysis	10	Cum Laude
Algebra II	10	Cum Laude

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