CRISTIAN DANIEL ALECSA

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Researcher

Summary

Applied Mathematics Researcher offering over 6 years of experience concerning numerical analysis, optimization, scientific computing and applications of mathematics in real sciences. Creative and dynamic researcher with proven expertise in Matlab, Python, Maple and C++ programming and also in theoretical principles of applied mathematics. Adept at working constantly for achieving goals concerning creative interdisciplinary fields that are in deep connection with programming and applied mathematics. Proficient in statistics, numerical analysis and interested in machine learning, AI and optimization. Detail-oriented, with analytical skills, interested in an intellectually demanding environment.

Technical Skills

- Expert level in Matlab Programming
- Deep understanding of Scientific Computing
- Strong Knowledge in Numerical Analysis
- Basic level in C++ Programming
- Good Knowledge in Computational Statistics
- Expert level in ODE's and PDE's
- Expert level in Maple Symbolic Computation
- Expert level in Python Programming
- Experienced in Applied Mathematics
- Strong understanding of Vector Calculus
- Theoretical Background in General Mathematics
- Experienced in Nonlinear Analysis

Employment Experience

2019 - present

Data Scientist

EspresSoft-Tech

- developing Data Science projects using statistical methods

- applying Artificial Intelligence and Machine Learning techniques to real life problems

- using with Python packages : pyOd, numpy, scipy, sk-learn, Tensorflow, Keras, PyTorch, cv2, statstmodels

- working with supervised & unsupervised learning techniques : clustering, outlier detection methods, time series, neural networks, classification problems, optimization & tuning of parameters, image processing, image segmentation

2017 - present

Assistant Researcher

Tiberiu Popoviciu Institute of Numerical Analysis, Romanian Academy, Cluj-Napoca, Romania

- worked on Numerical Analysis academic scientific articles

- used programming languages for Scientific Computing projects such as Matlab and C++

2018 - 2020

Researcher

Technical University of Cluj-Napoca, Romania

Member of the national research grant : PN-III-P1-1.1-TE-2016- 0266

- studied dynamical systems for unconstrained optimization problems

- programmed codes for optimizers using Keras and Tensorflow

- developed discretization schemes & optimization algorithms based on dynamical flows

2018 - 2019

Teaching Assistant : Department of Mathematics, Babes-Bolyai University, Cluj-Napoca, Romania

UBB ROMANIA

- taught Differential Equations and Dynamical Systems

- participated at scientific workshops in the field of Nonlinear Analysis

2015 - 2019

Adjunct Teaching Assistant : Department of Mathematics, Babes-Bolyai University, Cluj-Napoca, Romania

UBB ROMANIA

- taught Differential Equations, Dynamical Systems, Probability, Statistics, Numerical Calculus, General Mathematics

- worked with Mathematical Software such as Matlab and Maple

Education

2015 - PRESENT

PhD Studies

UBB ROMANIA

Doctoral Studies at Faculty of Mathematics and Computer Science of 'Babes-Bolyai' University (Cluj-Napoca, Romania) in the field of 'Nonlinear Operators and Differential Equations'

2013 - 2015

Master Studies

UBB ROMANIA

- MSc at Faculty of Mathematics and Computer Science of 'Babes-Bolyai' University, (Cluj-Napoca, Romania) in the field of Applied Mathematics
- Average Grade at Graduate Studies : 9.88/10
- Grade of master's dissertation presentation : 10/10

2010 - 2013

Bachelor Studies

UBB ROMANIA

- Undergraduate studies at Faculty of Mathematics and Computer Science of 'Babes-Bolyai' University, (Cluj-Napoca, Romania) in the field of Pure Mathematics
- Average Grade at Undergraduate Studies : 9.47/10
- Grade of the written undergraduate exam : 8.5/10
- Grade of bachelor license presentation : 10/10

2005 - 2009

High School Degree

DR. MIHAI CIUCA

- High School degree obtained at 'Dr. Mihai Ciucă' (Saveni, Botosani, Romania) in Mathematics and Computer Science
- Average Grade at Baccalaureate : 9.48/10

Spoken Languages

- **Romanian** : Mother Tongue (expert level)
- **English** : Native Tongue (advanced level)
- **French** : beginner level

IT Skills

- Matlab and Maple Programming (expert level)
- C++ Programming (intermediate level)
- Python Programming (expert level)
- Word Processing Languages : Latex & Beamer (expert level)
- Auxiliary IT related skills : Word, Excel, PowerPoint (intermediate level)
- Web Programming Skills : HTML, CSS, Javascript, JQuery, Bootstrap, PHP (basic level)

IT Certificates

- IT Certificate (High School graduation)
- Introduction to Python Programming (Udemy Course completed, 2017)
- Deep Learning Prerequisites.The Numpy Stack în Python (Udemy Course completed, 2017)

Teaching Experience

- Teaching - 2015-2016 / semester II
- Teaching - 2016-2017 / semester I
- Teaching - 2016-2017 / semester II
- Teaching - 2017-2018 / semester I
- Teaching - 2017-2018 / semester II
- Teaching - 2018-2019 / semester I
- Teaching - 2018-2019 / semester II

Conferences & Workshops

- Interdisciplinary Conference for Phd Students, Baru Mare, Hunedoara, 3-5 June 2016
- Student Scientific Session, Phd Students, Cluj-Napoca, 31 May 2016
- Student Scientific Session, Phd Students, Cluj-Napoca, 6 June 2017
- Numerical Analysis, Approximation and Modeling (Symposium), Cluj-Napoca, 14 June 2017
- National Session of Mathematics Scientific Communications, Iasi, 6-9 July 2017
- Monthly Seminars at 'Tiberiu Popoviciu' Institute of Numerical Analysis, 2017
- PhD Scientific Reports at 'Nonlinear Operators and Differential Equations' Research Group, UBB, 2015-present
- Participant at Vienna Workshop on Computational Optimization, Vienna, 2018
- Numerical Analysis, Approximation and Modeling (Symposium), Cluj-Napoca, 16 April 2019

Additional Scientific Activities

Made Scientific Reviews for the following journals :

- International Journal of Nonlinear Analysis and Applications

- Fixed Point Theory
- Filomat
- Advances in Difference Equations

Additional Mentions & Awards

- Geography Olympiad : 2006 – 2007, county stage (honourable mention)
- Mathematical Olympiad : 2006 – 2007, county stage (4th place)
- Geography Olympiad : 2007 – 2008, county stage (honourable mention)
- Mathematical Olympiad : 2008 – 2009, county stage (2nd place)
- Biology Olympiad : 2008 – 2009, county stage (5th place)
- Foundation for Evaluation in Education : 2008 – 2009, 2nd place (mathematical contest)
- Award for Scientific Research Results 2018 - from UEFISCDI, with submitting code PN-III-P1-1.1-PRECISI2018-26769 : for the article 'Some fixed point results regarding convex contractions of Presic type'
- Prize of the Romanian Academy for outstanding results regarding the theory and programming of numerical methods, 14 May 2019

Personal Projects

- GitHub Link : https://github.com/CDAlecsa
- Google Scholar Link : https://scholar.google.ro/citations?user=394mWmgAAAAJ&hl=ro

Interests

- Machine Learning & Artificial Intelligence
- Bayesian Statistics and Bayesian Modeling
- Numerical Linear Algebra & Iterative Methods
- Applied Mathematics
- Scientific Computing & Numerical Algorithms
- Applied Optimization
- Programming for Mathematical Software