**Center for Research and Training in Innovative Techniques
of Applied Mathematics in Engineering (*CiTi*),**
Faculty of Applied Sciences,
University Politehnica of Bucharest

Cipu Elena Corina
Membru CiTi,
Coordonator direcție cercetare **Algoritmi evolutivi şi aplicaţii**

Raport cercetare 2020

Tip activitate: Activitate de cercetare și instruire

Mai 2020

Sesiunea de comunicări ştiinţifice studenţească (SCSS-2020),

la Departamentul Matematici Aplicate (13-1)

- Un studiu matematic privind sistemele electroenergetice eoliene. Valeria-Alina ANDRONESCU, anul I, Facultatea Energetică
- Aplicații ale seriilor de timp în electrotehnică. Alexandru-Cosmin HRENCIUC, Radu-Andrei GHERASE, anul I, Facultatea de Inginerie Electrică
- Algoritmi cuantici pentru aproximarea Transformatei Fourier Cuantice folosiți în teoria informaţiei. Vasile-Laurenţiu DOSAN, anul II, Facultatea Ştiinte Aplicate
- Optimizarea resurselor energetice la nivel local-smart cities. Rareş-Mihail ALEXE-ANGHEL, anul I TCSI, Facultatea Ştiinte Aplicate
- Introducere în calculul evolutiv. Algoritmi genetici folosiți în teoria informaţiei. Roxana-Ştefania OAJE, anul I TCSI, Facultatea Ştiinte Aplicate

The 2nd edition of the Workshop on Innovative Techniques, Diversity & Connectivity, May 21, 2020

Secţiunea: Interdisciplinary mathematics in CiTi domains: a students' vision of reality and adversity

A Mathematical Study on energetic wind systems

Student: Valeria-Alina ANDRONESCU, Faculty Of Energetics, year IA

Abstract: In this paper, a mathematical study will be presented regarding the need for Romania to be able to give up in a few years the production of electricity using fossil fuels, a source that provides most of the energy production. In order to distribute the estimated number of wind turbines on the ground at the optimal distance, an application made in Autocad 2017 based on Peano's curve is used.

Quantum algorithms for QFT approximation used in QIT

Student: Vasile - Laurentiu DOSAN, Faculty of Applied Sciences, year II

Abstract: In this work, we describe quantum Fourier transform (QFT) which basically is a discrete Fourier transform (DFT). It's main application is phase estimation, an essential part from Shor's algorithm used in
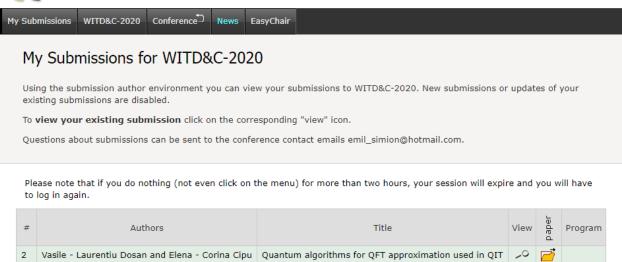
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quantum computation. We have implemented circuits for QFT and inverse QFT using IBM Quantum Experience and we did an approximation of QFT.

Research on households energy consumption time series

Students: Radu-Andrei GHERASE, Alexandru-Cosmin HRENCIUC, Faculty of Electrical Engineering, year IC

Abstract: The main theoretical and practical aspects related to forecasting using time series were taken into account. These models also help to determine trends and thus allow us to adjust our plans in accordance with that activity. A practical study was made.

Iulie-august 2020

Redactare Capitol Curs Internațional

Capitolul 2: METHODS FOR ESTIMATING NONLINEARITIES

(Functions approximations by polynomial interpolation, Iterative methods for calculating the eigenvalues and eigenvectors of a matrix, Estimation methods of probability densities functions, Esimation methods for solutions of nonlinear ODEs)

Curs ERASMUS: INNOVATIVE MATHEMATICAL MODELING TECHNIQUES: WAVELET ANALYSIS

Profesori: Simona Mihaela Bibic, Antonela Toma, Elena Corina Cipu, Mihai Rebenciuc

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August-Septembrie 2020

Coordonare practică studențeasca

Realizarea unui site web

Utilizarea HTML si CSS: Utilizarea unor scheme generale de design a site-ului: pentru pagina principala si pentru paginile secundare (asezarea in pagina, delimitarea continutului de header si footer, etc)

Bibliografie:

HTML, CSS and Javascript for Web Developers(Coursera)

https://github.com/, https://stackoverflow.com/

Student: Zaieț Eduard Gabriel

Octombrie 2020

Conferița BeHEALTH 2020, International on-line Event in Healthcare,27th-29th October 2020, Bucharest, Romania

Participare la Secțiunile

SOCIAL RESPONSIBILITY FOR HEALTH, E-HEALTH AND EDUCATION, QUALITY FOR MEDICAL SERVICES

Noiembrie 2020

Chair la Sesiunea: *Applied Mathematics in Information Technology*

THE 3rd EDITION OF THE WORKSHOP ON INNOVATIVE TECHNIQUES, DIVERSITY & CONNECTIVITY, November 19, 2020,

Participare lucrări:

Applications of the Quantum Fourier Transform in Data Security,

Authors Vasile Laurentiu Dosan, Elena Corina Cipu and Emil Simion

Hybrid Systems for Alternative Energy Production

Authors Valeria-Alina Andronescu, Elena Corina Cipu and Simona Mihaela Bibic

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Lucrari publicate

E.C.Cipu, S.M. Bibic, A. Toma: S*ome Applications of Mathematical Modeling of Risk Assessment*, U.P.B. Sci. Bull., Series A, Vol. 82, Iss. 4, 2020, ISSN 1223-7027

V.L. Dosan, E.C. Cipu: *Quantum Algorithms for Quantum Fourier Transform Used in Quantum Information Theory* Proceedings of the 36th International Business Information Management Association, (IBIMA), ISBN: 978-0-9998551-5-7, 4-5 November 2020, Granada, Spain.

V.A. Andronescu, E.C. Cipu: *A Mathematical Study Regarding Wind Turbines*, Proceedings of the 36th International Business Information Management Association (IBIMA), ISBN: 978-0-9998551-5-7, 4-5 November 2020, Granada, Spain.

Data: 12.12.2020
        Cipu Elena Corina