

Atanas Hristov
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Education:

PostDoc Fellow, University of Antwerpen, Belgium September 2015 - June 2016
MOSAİK research group, under supervision of prof. Jan Broeckhove.
Project: “A Systems Biology Approach of Leaf Morphogenesis”

PhD, Computer Systems and Networks, Technical University of Sofia, 2013
Concentrations: Parallel Computing, Multi-Core Computing Systems, Resource Management
Dissertation: Resource Management Optimization at Multicore Platforms

Master of Science, Computer Systems and Control, Technical University of Sofia, 2009
Concentration: Communication Protocols, Web Programming
Thesis: Development of web-based system for e-mail

BSc, Computer Systems and Technology, Technical University of Sofia – Branch Plovdiv, 2007
Thesis: Development of mail client

Teaching experience (*all courses are taught in English) :

1. Research Associate/ Lecturer , 2015 - present - University for Information Science and Technology

Courses taught at second cycle (Master) study:

- High-Performance Computing
- Big Data Analytics
- Advanced Distributed Systems

Courses taught at first cycle (Bachelor) study:

- Programming I/Introduction to Programming,
- Programming II/Object Oriented Programming
- Information and Communication Technologies
- Network Architectures,
- Communication Protocols,
- Computer Organization,
- Parallel Data Processing,
- Computing System Configuration
- Computer Components

2. Teaching Assistant, 2009-2015 - University for Information Science and Technology

Courses taught:

- Network Architectures,
- Communication Protocols,
- Programming I,
- Programming II,
- Programming IV,
- Operating Systems,
- Cryptography,
- Discrete Mathematics,
- Human-Computer Interaction

3. Guest Lecturer, 2010-2011 - Technical University of Sofia

- Parallel Programing
- High-Performance Computing Systems

4. Coordinator of the Macedonian Supercomputing Laboratory, 2010-2011

Professional memberships:

- MC member of COST Action CA16122 - BIONECA
- Member of COST Action CA16101 - MULTI-modal Imaging of FOREnsic SciEnce Evidence - tools for Forensic Science
- Member of COST Action IC1305 in NESUS working group 2, 2014
- Member of Macedonian Scientific Society – Bitola, 2010
- Member of Program Committee of 16th International Conference on Algorithms and Architectures for Parallel Processing” - ICA3PP 2016
- Member of Program Committee of 17th IEEE/ACM International Symposium on Cluster, Cloud and Grid” - CCGRID 2017
- Member of Program Committee of International Conference Applied Computer Technologies 2018” - ACT 2018
- Member of Program Committee of International Conference Applied Computer Technologies 2019” - ACT 2019
- Member of Program Committee of International Workshop on Theoretical Approaches to Performance Evaluation, Modeling and Simulation” - TAPEMS 2019
- Member of the Organization Committee of the Sixth International Conference – Computer Science 2011

Research Skills:

- Extensive knowledge in the area of High-Performance Computing, Parallel Programming and Genetic Algorithms for search and optimization.
- Knowledge in the area of biomedical image analysis with Matlab.

Research Projects:

- ”Методологија за мониторинг на изборното медиумско претставување преку електронските медиуми (интернет портали) за време на изборните процеси”, поддржан и финансиран од Државна Изборна Комисија на РМ (ДИК) и International Foundation for Electoral Systems (IFES), (2018-2019). - Coordinator.
- A Systems Biology Approach of Leaf Morphogenesis” founded by the research council of the University of Antwerp and an Interuniversity Attraction Poles (IUAP) from the Belgian Federal Science Policy Office (BELSPO) (2015-2017) - Participant
- Center of excellence “Supercomputing Applications” – DCVP 02/1, supported by the National Science Fund, Bulgarian Ministry of Education and Science (2010 – 2013) - participant.
- Automated enumeration of circulating tumor cells in peripheral blood from prostate and breast cancer patients, Giannakakou Laboratory in the Division of Hematology and Medical Oncology at Weill Cornell Medical College, New York (2012-2013) - participant.

Publications:

I. Book Chapter

1. Karine Zeitouni, Mariem Brahem, Laurent Yeh, **Atanas Hristov** (2020), “Query Processing and Access Methods for Big Astro and Geo Databases” in Elsevier, *Knowledge Discovery in Big Data from Astronomy and Earth Observation*

II. Scientific journals

2. ”Artificial Bee Colony Optimization Technique for Effective Resource Allocation” **Hristov Atanas**, Borovska,P. Journal of Emerging Research and Solutions in ICT, Vol.1, No.1, 75–87 April 2016.
3. ”Exascale machines require new programming paradigms and runtimes”; G. D. Costa, T. Fahringer, J. A.Gallego, I. Grasso, **Atanas Hristov**, H. D. Karatza, A. Lastovetsky, F. Marozzo, D. Petcu, G. L. Stavrinides, D.Talia; Supercomputing Frontiers and Innovations journal, Vol 2, Special Issue: Sustainability In Ultrascale Computing Systems, November 2015.
4. Modular Router Architecture for High-Performance Interconnection Networks; Plamenka Borovska, Dragi Kimovski and **Atanas Hristov**; Technical Gazette, issue No. 5, Vol. 22, ISSN 1330-3651, October 2015 IF 0.615

5. **Hristov Atanas**, P. Borovska (2012), “A Next-Generation Programming Languages and Models for High Performance Computing Systems”, Computer & Communications Engineering scientific journal, Vol. 6, No. 2/2012.
6. **Hristov Atanas** (2013), “Hybrid Parallel Programming Model for Solving the Travelling Salesman Problem”, Computer & Communications Engineering scientific journal, Vol. 7, No. 1/2013.

III. Proceeding of Conferences

7. “Single RNA Secondary Structure Prediction based Dynamical programming algorithms: to pralelize or not?”; Bisera Chauleva, Ljubinka Sandjakoska Atanas Hristov, Proceeding of 17th International Conference on Informatics and Information Technologies, 2020
8. ”Deep Neural Networks as supporting tools to cardiology”; Ljubinka Gjergjeska Sandjakoska, Atanas Hristov, Proceeding of 4th COST Action EU-cardioprotection workshop; Kragujevac, Serbia, 2019
9. ”On the importance of deep learning regularization techniques in knowledge discovery”; Ljubinka Gjergjeska Sandjakoska, Atanas Hristov, Ana Madevska Bogdanova; Proceeding of international conference on Knowledge Discovery in Big Data from Astronomy and Earth Observation; Tenerife, Spain, 2018
10. “Concurrent parallel programming models for Big-data processing” ; Atanas Hristov, Marijana Krsteva, Proceeding of international conference on Big Data processing in the forthcoming era of ultra-high resolutions, Novi Sad, February 2018
11. “Improved programmability for extra large scale systems” ; **Atanas Hristov**, Proceeding of international conference on big data processing and management concepts for new platforms, Sopron, Hungary, February 2017
12. ”Resource Management Optimization in Multi-Processor Platforms”; Atanas Hristov, Iva Nikolova, Georgi Zapryanov, Dragi Kimovski, Vesna Kumbaroska; Proceedings of Third Nesus Action Workshop, Sofia, Bulgaria, 2016
13. “Nature-Inspired Algorithm for Solving NP-Complete Problems”; **Atanas Hristov**; Proceedings of second International Workshop on Sustainable Ultrascale Computing Systems, Krakow, Poland, November 2015
14. **Hristov Atanas**, Dragi Kimovski (2011), “Development of Virtual Storage System”, Sixth International Conference – Computer Science 2011, ()
15. D. Kimovski, **Atanas Hristov** (2013), “Buffer Management in High-performance Routers”, XLVIII international scientific conference ICEST 2013.

16. M. Sung, A. Gjyrezi, Y. Syed, A. Matov, **A. Hristov**, Y. Lee, P. Giannakakou (2013), “Using CTCs to interrogate mechanisms of taxane resistance in the prospective TAXYNERGY clinical trial in Prostate Cancer”, annual meeting of American Association for Cancer Research, New York 2013.
17. M. Sung, A. Gjyrezi, Y. Syed, **A. Hristov**, A. Matov, Y. Lee, P. Giannakakou (2012), “Molecular determinants of taxane activity using CTCs from CRPC patients”, Physical Sciences in Oncology Center (PS-OC) Symposium at the Center on the Microenvironment and Metastasis at Cornell.
18. P. Borovska, **Atanas Hristov**, D. Kimovski (2012), “Performance Evaluation Of Intel Threading Building Blocks And Openmp Programming Models”, X-th international conference CHER 21, 06/2012
19. P. Borovska, D. Kimovski, **Atanas Hristov** (2012), “Step-Back-On-Blocking Flow Control Mechanism For High Performance Interconnection Networks”, X-th international conference CHER 21, 06/2012
20. D. Kimovski, **Hristov Atanas**, Rasim Salkoski (2011), “Development of highly parallel “Beowulf” cluster and optimization of MPI based implementation of the N-Queens problem with regards to the architecture of the system”, X International Conference ETAI 2011,
21. D. Kimovski, **Hristov Atanas** (2011), “Development of Hybrid MPI/CUDA Based Cluster for Educational Purposes”, Sixth International Conference – Computer Science 2011, ()

Other Research Activities:

- Co-designer of the first Macedonian Supercomputer.

Skills and Qualifications:

- Experience with IBM Blue Gene/P Supercomputer, operate by the Bulgarian Academy of Sciences and the Sofia University
- Good Experience with Windows based IBM BladeCenter, operate by Technical University of Sofia
- Good Experience with Linux Based High-Performance Computing Cluster, operate by Technical University of Sofia
- Experience with Intel Parallel Studio, Message Passing Interface, Open Multi-Processing (OpenMP)
- Ability for team working, communicative and ambitious
- Fluent English