André Leon S. Gradvohl

Associate Professor at Universidade Estadual de Campinas - UNICAMP

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Summary

Andre Leon S. Gradvohl holds a bachelor's degree in Computer Science from the Universidade Federal do Ceará (Brazil, 1997), a Masters of Science in Electrical Engineering and Computer Science from the Technological Institute of Aeronautics (Brazil, 2000), and a Ph.D. in Electrical and Computer Engineering from the Universidade Estadual de Campinas (Brazil, 2005). He also holds a Specialist degree in Science Journalism from the Advanced Studies in Journalism Laboratory at the Universidade Estadual de Campinas (Brazil, 2010). In 2014, he did a Postdoctoral stage at the Laboratoire d'Informatique de l'Université Pierre et Marie Curie in Paris, France. Since 1999, he has taught at undergraduate and graduate levels in Brazilian universities.

Dr. Gradvohl was user support analyst at the National Center for High-Performance Computing (2003–2010). He was head of Computer Science and Computer Engineering undergraduate courses at the University São Francisco (2002–2010) and head of the Information Systems and Technology in Systems Analysis and Development undergraduate courses at the School of Technology at the Universidade Estadual de Campinas (2013). He was also *an ad-hoc* consultant in the Brazil Ministry of Education and the São Paulo State Council of Education.

Currently, he is an associate professor at the Faculdade de Tecnologia at the Universidade Estadual de Campinas. He has research experience in Computer Science, with an emphasis on High-Performance Computing and Distributed Computing. Besides, he has some works on Space Weather Forecast. He is a Senior Member at IEEE, and he belongs to the High-Performance Intelligent Decision Systems research group (HighPIDS).

Professional Experience

Associate Professor — 2020 - Present

Faculdade de Tecnologia at the Universidade Estadual de Campinas, UNICAMP, Brazil.

Government Employee, Tenured.

Assistant Professor — 2010 - 2020

Faculdade de Tecnologia at the Universidade Estadual de Campinas, UNICAMP, Brazil.

Government Employee, Tenured.

Post Doctorate — 2013 - 2014

Université Pierre et Marie Curie, UPMC, France

Post doctorate in Distributed Systems. Grantee of: Coordination of Improvement of Higher Education Personnel, CAPES, Brazil.

Head of Informatics Department — 2013 - 2013

Faculdade de Tecnologia at the Universidade Estadual de Campinas, UNICAMP, Brazil.

Responsible for Information Systems and System Analysis and Development undergraduate courses.

Consultant — 2005 - 2019

National Institute for Educational Studies and Research, Ministry of Education, INEP/MEC, Brazil.

Responsible for the accreditation of undergraduate courses in Informatics (Computer Engineering, Computer Science, Information Systems, and System Analysis and Development undergraduate courses.

Head of Informatics Department — 2007 - 2010

São Francisco University, Brazil

Responsible for Computer Engineering, Computer Science and System Analysis and Development undergraduate courses.

Skills

Professor

Teaches at graduate and undergraduate levels.
Classes taught:

- Computer Architecture and Organization
- Computer Networks
- High Performance Computing
- Object-Oriented Programming in Java
- Operating Systems
- Science, Technology and Society
- Systems Security and Auditing

Researcher

Conducting research in the following areas:

- Space Weather Forecasting.
- Information Security.
- Distributed Data Streams Processing.
- High-Performance Computing.

Languages

English, French, Spanish and Portuguese (mother language)

Programming Languages and APIs

Fortran, C, C++, Java, Python
PThreads, OpenMP, OpenACC, MPI, RMI

Computing tools

LaTeX, Vi, Wireshark, YACC, Bison, Lex, Linux (Fedora, CentOS, Rocky, Kali), AWS, GitHub

Professor 2002 - 2010
São Francisco University, Brazil
Taught in Computer Engineering, Computer Science, and System Development and Analysis undergraduate courses.

User Support Analyst 2003 - 2010
National Center for High-Performance Computing at São Paulo
Responsible for the user support and training of the National System of High- Performance Computing.

Professor 2000 - 2002
Federal University of Itajubá, UNIFEI, Brazil.
Taught in Computer Science undergraduate course

Education

Doctor of Philosophy 2000 - 2005
Universidade Estadual de Campinas
Electrical Engineering - Telecommunications and Telematics

Master in Science 1997 - 2000
Technology Institute of Aeronautics
Electronics and Computer Science

Specialist in Scientific Journalism 2009 - 2010
Universidade Estadual de Campinas

Baccalaureate in Computer Science 1992 - 1997
Universidade Federal do Ceará

International Committees Member

ORCID Researcher Advisory Council (ORAC) Member January, 2023 - Present
ORCID - https://orcid.org
Provide advice to ORCID staff and the ORCID Board to ensure that ORCID provides value and utility to researchers and facilitates research and innovation

NumFOCUS Affiliated Project Selection Committee Member March, 2023 - Present
NumFOCUS - https://numfocus.org
Responsible for evaluating applications from open source projects for Affiliated Project status with NumFOCUS and working with applicant projects throughout the review process.

Research Projects

Solar Flare Forecasting Based on Automatic Analysis of Magnetograms November, 2023 - October, 2024
Faculdade de Tecnologia at the Universidade Estadual de Campinas
Several physical phenomena occur on the Sun with repercussions throughout the solar system, particularly on Earth. This set of phenomena is called Space Weather. It is a reason for concern in several sectors, notably communications and Earth-orbiting technologies such as satellites and space stations. Of these physical phenomena, one that draws attention is solar flares. However, forecasting when these solar flares will occur is challenging for many researchers. Predictive models can reach more than 85 accuracy in up to 72 h. However, these models only predict a flare occurrence, but they are not location-specific on the solar disk. This research project aims to take a step beyond the state-of-the-art, developing a prediction model that can inform in advance which is the active region that will cause a high-intensity solar flare. For this, we will use deep learning algorithms that can detect, segment, and subsequently classify active regions on the Sun with the potential to generate high-intensity solar flares. We expect this research to produce software capable of automatically performing this analysis, facilitating astrophysicists' work forecasting solar flares.

Awards

2023 Honorable Mention as Coach at International Collegiate Programming Contest, awarded by ACM.

2021 "Zeferino Vaz" Academic Recognition Award granted by the University of Campinas.

2021 Thesis advisor nominated for the CAPES Award for Thesis by the Graduate Program in Technology of the School of Technology at UNICAMP.

2019 Honorable Mention for supervising the undergraduate work "Using deep learning to identify and classify sunspots in magnetograms"

2019 AWS Educate Cloud Faculty Ambassador, awarded by the Amazon Web Services.

2019 IEEE Collabratec Ambassador, awarded by IEEE

2018 Undergraduate Teaching Acknowledgement, awarded by the University of Campinas

2017 IEEE Senior Member, awarded by IEEE

2015 Innovative Professor, awarded by The School of Education at University of Campinas.

2012 Honorable Mention - International Collegiate Programming Contest, awarded by ACM.

2012 Best Poster at IV Workshop of School of Technology at University of Campinas.

Forecasting Space Weather Phenomena with Machine Learning and Deep Learning Algorithms

March, 2022 - March, 2023

Faculdade de Tecnologia at the Universidade Estadual de Campinas

Project to improve the computational infrastructure for research with Machine Learning and Deep Learning algorithms to forecast solar flares in the medium term (24h to 48h) using magnetograms.

Development and application of machine learning algorithms in solar flare forecasting

2019 - 2020

Amazon Web Services

Among the phenomena that occur in the Sun, solar flares have an impact on technologies working on Earth or in its orbit. Currently, much research has applied machine learning algorithms to try to forecast solar flares 24, 48, and up to 72 hours in advance. However, some situations that make this forecast difficult. These situations include the unavailability of algorithms for handling operational data, the accuracy -- around 85% -- of short-term forecasts, and the limited number of attributes that are used to make predictions. Given these limitations, this project aims to develop and apply machine learning and deep learning algorithms to increase prediction accuracy using different raw data attributes and different data types (i.e., images). For this purpose, resources will be used in the computational cloud to drive both the development and application of selected algorithms in order to accelerate predictions.

Automatic Magnetograms analysis for identification and classification of Sun active regions

2018 - 2019

Amazon Web Services

The Sun is a star that continually performs nuclear fusions in its interior. This phenomenon generates an immense amount of energy that, for the most part, the Sun releases through a convective process. This process releases highly charged particles that exit the nucleus, reach the photosphere and release this energy in the form of light and heat. Solar explosions and coronal mass ejections are the main events responsible for the emission of particles and energy. These events have implications for Earth's magnetic fields, alter the ionosphere, causing the aurora borealis, and disrupt the reflection of waves used in some communications systems such as radios, GPS, and other communication technologies. Therefore, the classification of these space activities earlier can anticipate actions to mitigate the impact caused on the technologies that operate on or near Earth, e. g. The International Space Station. This project proposes the use of the Deep Learning technique to automatically identify and classify the active regions, precursors of solar explosions. For this goal, we will use Deep Learning models and a magnetograms database. Magnetograms are a pictorial representation of the solar magnetic fields. Within an active region, when magnetic fields with different polarities come together, they may cause solar explosions. Analyzing magnetograms can identify the active regions and forecast a solar explosion. We will divide the magnetogram database into three subsets, respectively for training; for testing; and for validation of the trained neural network. We expect that this network will be able to recognize the active regions - which contain the sunspots - and to estimate the type of explosion generated by the identified active region.

Multi-dimensional analysis of online data stream processing systems

2015 - 2017

Granted by São Paulo Research Foundation (FAPESP)

This project will develop studies to establish metrics for performance analysis of these systems and propose strategies to increase the availability and fault tolerance in components of such systems, without much sacrifice in their performance. One of the expected results is the creation of a benchmark system that will serve as a tool to analyze the behavior of online data stream processing systems in a controlled environment.

Fault tolerance and high availability in distributed online stream processing systems

2013 - 2014

Granted by Coordination for the Improvement of Higher Education Personnel (CAPES)

This project aims at establishing metrics for performance analysis of Complex Event Processing systems, and propose strategies to increase the high availability and fault tolerance of the components in these systems, without sacrificing much performance.

Metalanguage for high performance computing in hybrid architectures.

2011 - 2013

Granted by São Paulo Research Foundation (FAPESP)

This research project proposes the specification of a metalanguage and a pre-compiler software to develop applications that require high performance computing in hybrid architectures. The metalanguage proposed consists of annotations which can be embedded in the source code of programs written in a particular high level programming language. Translated by the pre-compiler, the annotations embedded in the source code generate a new code that embeds calls for application programming interfaces (APIs) which uses MPI, OpenMP or Pthreads.

Application of high performance computing in interdisciplinary problems 2010 - 2011

Faculdade de Tecnologia at the Universidade Estadual de Campinas

This research project aims at using High-Performance Computing to solve some interdisciplinary problems such as materials science, environment, and others.

Scientific, Technological, Artistic and Cultural Production

Papers in Scientific Journals

GRIM, L. F. L.; GRADVOHL, A. L. S. Solar Flare Forecasting Based on Magnetogram Sequences Learning with Multiscale Vision Transformers and Data Augmentation Techniques. Solar Physics, v. 299, p. 33, 2024. DOI: 10.1007/s11207-024-02276-0

MARCHI, F. C.; GRADVOHL, A. L. S. Studies on indoor positioning algorithms using BLE Beacons REVISTA BRASILEIRA DE COMPUTAÇÃO APLICADA, v. 15, n.3 p. 106-114, 2023. DOI: 10.5335/rbca.v15i3.14592

SHIRASUNA, V. Y.; GRADVOHL, A. L. S. An optimized training approach for meteor detection with an attention mechanism to improve robustness on limited data. Astronomy and Computing, v. 45, p. 100753, 2023. DOI: 10.1016/j.ascom.2023.100753

CAVALLARO, V. C. S.; SPIANDORELLO, S. C.; GRADVOHL, A. L. S. Analysis of the Digital Transformation in the Bragantine Region. Revista Gestão e Tecnologia, v. 23, p. 57-80, 2023. DOI: 10.20397/2177-6652/2023.v23i2.2544

RIBEIRO, F.; GRADVOHL, A. L. S. Machine learning techniques applied to solar flares forecasting. Astronomy and Computing, v. 35. 2021. DOI: 10.1016/j.ascom.2021.100468.

SILVEIRA, M. F.; GRADVOHL, A. L. S. Security analysis of the message queuing telemetry transport protocol. REVISTA BRASILEIRA DE COMPUTAÇÃO APLICADA, v. 13, p. 83-95, 2021. DOI: 10.5335/rbca.v13i2.12163

CINTO, T.; GRADVOHL, A. L. S.; COELHO, GUILHERME P ; SILVA, A. E. A. A Framework for Designing and Evaluating Solar Flare Forecasting Systems. Monthly Notices of the Royal Astronomical Society, v. 495, p. 3332-3349, 2020. DOI: 10.1093/mnras/staa1257

CINTO, T.; GRADVOHL, A. L. S.; COELHO, G. P.; SILVA, A. E. A. Solar Flares Forecasting Using Time Series and Extreme Gradient Boosting Ensembles. Solar Physics, v. 295, p. 93, 2020. DOI: 10.1007/s11207-020-01661-9

DE MORAES, M. B.; GRADVOHL, A. L. S. A comparative study of feature selection methods for binary text streams classification. Evolving Systems, v. 12, p. 306, 2020. DOI: 10.1007/s12530-020-09357-y

DE MORAES, M. B.; GRADVOHL, A. L. S. Evaluating the impact of a coordinated checkpointing in distributed data streams processing systems using discrete event simulation. Revista Brasileira de Computação Aplicada, v. 12, n.2, p. 16-27, 2020. DOI: 10.5335/rbca.v12i2.10295

OLIVEIRA, L. S.; GRADVOHL, A. L. S. Automatic analysis of magnetograms for identification and classification of active regions using Deep Learning. Revista Brasileira de Computação Aplicada, v. 12, p. 67-79, 2020. DOI: 10.5335/rbca.v12i2.10531

DE MORAES, M. B.; GRADVOHL, A. L. S. MOAFS: A Massive Online Analysis library for feature selection in data streams. Journal of Open Source Software, v. 5, p. 1970, 2020. DOI: 10.21105/joss.01970

PEREIRA, J. F.; SILVA, A. E. A.; GRADVOHL, A. L. S.; COELHO, G. P.; CECATTO, J. R. A Study of The Relationship Among Parameters of M/X Solar Flares via Association Rules. International Journal of Artificial Intelligence and Expert Systems, v. 8, p. 63-77, 2019. DOI: 10.5281/zenodo.3552434

GRIM, L. F. L. ; BARAJAS, J. A. B. ; GRADVOHL, A. L. S. . Implementações paralelas para o algoritmo Online Sequential Extreme Learning Machine aplicado à previsão de material particulado. Revista Brasileira de Computação Aplicada, v. 11, p. 13-21, 2019. DOI: 10.5335/rbca.v11i2.9089

GRAVENA, F. M.; MAGOSSI, M. V.; GRADVOHL, A. L. S. Pesquisa de softwares para apoio à aprendizagem de Arquitetura e Organização de Computadores em cursos de graduação. Perspectivas em Ciências Tecnológicas, v. 5, p. 122-132, 2016.

ZAMBON, A. C.; SILVA, A. E. A.; BAIOCO, G. B.; GRADVOHL, A. L. S.; NUNES, P. I. G. Obsolescência Acelerada De Produtos Tecnológicos e os Impactos na Sustentabilidade da Produção. RAM. Revista de Administração Mackenzie (Online), v. 16, p. 231-258, 2015.

GRADVOHL, A. L. S. Comparação Brasil-França à luz de indicadores de Ciência e Tecnologia selecionados. Passages de Paris (APEB-Fr), v.9, 2015.

GRADVOHL, A. L. S. Sensoriamento participativo para determinação de prioridades no atendimento de vítimas de desastres naturais. Passages de Paris (APEB-Fr), v. 9, 2015.

GRADVOHL, A. L. S.; SENGER, H.; ARANTES, L.; SENS, P. Comparing Distributed Online Stream Processing Systems Considering Fault Tolerance Issues. Journal of Emerging Technologies in Web Intelligence, v. 6, p. 174-179, 2014. DOI: 10.4304/jetwi.6.2.174-179

GRADVOHL, A. L. S. Metalanguage for high-performance computing on hybrid architectures. IEEE Latin American Transactions, v. 12, p. 1162-1168, 2014. DOI: 10.1109/TLA.2014.6894015

ANDRIJAUSKAS, F.; GRADVOHL, A. L. S. Gaspra - software for astronomical image processing in high-performance computing clusters. Revista Brasileira de Computação Aplicada, v. 6., n.2, p. 87-97, 2014. DOI: 10.5335/rbca.2014.4072

SANTOS, J. J.; IANO, Y.; GRADVOHL, A. L. S. A novel blocking effect reduction method based on human visual system features. Revista Ciência e Tecnologia, v. 14, p. 37-50, 2011.

GRADVOHL, A. L. S.; IANO, Y. Matching Interactive TV and Hypervideo. IEEE Latin America, v. 5, p. 579-584, 2007. DOI: 10.1109/t-la.2007.4445709

GRADVOHL, A. L. S.; IANO, Y. TV Interativa Baseada na Inclusão de Informações Hipermídia em Vídeos. Revista Ciência e Tecnologia, v. 8, p. 7-21, 2005.

Book Published

GRADVOHL, A. L. S. A Pesquisa na Nuvem: Ferramentas na internet para organizar e produzir seu trabalho acadêmico. 1. ed. Düsseldorf: Novas Edições Acadêmicas, 2017. v. 1. 104p. ISSN: 9786202042826.

GRADVOHL, A. L. S. TV Interativa Baseada na Inclusão de Informações Hipermídia em Vídeos no Padrão MPEG. 1. ed. Saarbrücken: Novas Edições Acadêmicas, 2016. v. 1. 128 p. ISSN: 978-3-8417-2506-6.

Book Chapters Published

GRADVOHL, A. L. S. Infraestrutura para computação científica de alto desempenho: dos agrupamentos às grades computacionais. In: Patrícia Ligabó Murarolli; Márcio Tadeu Girotti. (Org.). Inovações Tecnológicas nas Perspectivas Computacionais. 1 ed. São Paulo: Biblioteca 24 horas, 2015, v. 1, p. 6-14. ISSN: 978-85-4160-938-8.

GRADVOHL, A. L. S. A velocidade do conhecimento. In: Paula Cabral. (Org.). Como manter o melhor dos 30. 1 ed. São Paulo: Matrix, 2010, v. 1, p. 11-17. ISSN: 8563536192.

Articles in Newspapers/Magazines

GRADVOHL, A. L. S. Space Weather and the Impact of Solar Phenomena on Human Activities. IEEE Transmitter. 9 jun. 2017.

GRADVOHL, A. L. S. Supercomputing and virtualization. Revista InfraMagazine, p. 65 - 69, 13 jun. 2012.

GRADVOHL, A. L. S. High Availability Management for IT Services. Revista InfraMagazine, São Paulo, 02 abr. 2012.

GRADVOHL, A. L. S. High availability and disaster recovery: the continuity of IT services in case of failure. Revista InfraMagazine, São Paulo, v. 4, 02 jan. 2012.

GRADVOHL, A. L. S. The flirtation between astronomy and science fiction. ComCiência (UNICAMP), Campinas-SP, v. 112, 10 out. 2009.

GRADVOHL, A. L. S. Digital Convergence: integrated media. ComCiência (UNICAMP), Campinas, v. 110, 10 ago. 2009.

Complete works published in conferences proceedings

BUENO, M. C.; COELHO, G. P.; SILVA, A. E. A.; GRADVOHL, A. L. S. Evaluating the Impact of Pre-clustering and Class Imbalance on Solar Flare Forecasting. In: XV Encontro Nacional de Inteligência Artificial e Computacional - ENIAC. São Paulo: CEUR-WS, 2018. DOI: 10.5753/eniac.2018.4441

MORAES, M. B.; GRADVOHL, A. L. S. Performance Evaluation of Feature Selection Algorithms Applied to Online Learning in Concept Drift Environments. In: XV Encontro Nacional de Inteligência Artificial e Computacional - ENIAC. São Paulo: CEUR-WS, 2018. DOI: 10.5753/eniac.2018.4438

GRIM, L. F. L.; GRADVOHL, A. L. S. High-Performance Ensembles of Online Sequential Extreme Learning Machine for Regression and Time Series Forecasting. In: High Performance Machine Learning Workshop. 2018, Lyon. 30th International Symposium on Computer Architecture and High Performance Computing. New York: IEEE, 2018. p. 394-401. DOI: 10.1109/CAHPC.2018.8645863

GRADVOHL, A. L. S. Metrics and Tool for Evaluating Data Stream Processing Systems. In: International Symposium on Intercloud and IoT, 2018, Barcelona. International Conference on Future Internet of Things and Cloud Workshops. New York: IEEE, 2018. p. 48-55. DOI: 10.1109/W-FiCloud.2018.00014

GRIM, L. F. L.; BARAJAS, J. A. B; GRADVOHL, A. L. S. Implementações paralelas para o algoritmo Online Sequential Extreme Learning Machine aplicadas a Previsão de concentração de Material Particulado no ar. In: 9ª Escola Regional de Alto Desempenho, São José dos Campos, 2018.

GRADVOHL, A. L. S. Boosting the Engagement of Undergraduate Students in the Class Activities through Gamification. In: Inovações Curriculares, 2019, Campinas. Inovações Curriculares 2017. Campinas: Editora da Unicamp, 2017. v. 1. p. 24-28.

CALDANA, I; da SILVA, A. E. A.; COELHO, G. P.; GRADVOHL, A. L. S. Using X-Ray Flux Time Series for Solar Explosion Forecasting. In: 2017 Brazilian Conference on Intelligent Systems (BRACIS). p. 204-209.

QUEIROZ, M. D.; GRADVOHL, A. L. S. Estudo do mecanismo de descoberta de vizinhança do IPv6 para a realização do ataque man in the middle. In: Workshop de Trabalhos de Iniciação Científica e de Graduação. XVII Simpósio Brasileiro em Segurança da Informação e de Sistemas Computacionais (SBSeg), 2017.

GRADVOHL, A. L. S. Investigating Metrics to Build a Benchmark Tool for Complex Event Processing Systems. In: 2016 IEEE 4th International Conference on Future Internet of Things and Cloud Workshops (FiCloudW), 2016, Vienna. 2016 IEEE 4th International Conference on Future Internet of Things and Cloud Workshops (FiCloudW). p. 143-147. DOI: 10.1109/W-FiCloud.2016.40

GRADVOHL, A. L. S. Jornalismo Científico como ferramenta para o ensino de Ciência, Tecnologia e Sociedade para estudantes de graduação em Tecnologia. In: Inovações Curriculares, 2016, Campinas. V Seminário Inovações em Atividades Curriculares. Campinas: FE/UNICAMP, 2015. v. 1. p. 44-56.

ANDRIJAUSKAS, F.; GRADVOHL, A. L. S. Solar filaments detection using parallel programming in hybrid architectures, 2012, Delft. Proceedings of the 2012 workshop on High-Performance Computing for Astronomy Date - Astro-HPC'12. New York: ACM Press. v. 1. p. 41-48. DOI: 10.1145/2286976.2286987

GRADVOHL, A. L. S.; IANO, Y., 2004, An approach for interactive television based on insertion of hypermedia information in MPEG standard video. Reading. IEEE International Symposium on Consumer Electronics 2004. Reading: IEEE, 2004. v. 1. p. 25-30. DOI: 10.1109/isce.2004.1375898

ALMEIDA, F. A.; GRADVOHL, A. L. S.; MENEGHETTI, L., 1998, Los Angeles. Human Factors in Computing Systems. Los Angeles: Addison Wesley, 1998. p. 384.

Expanded Summary published in conferences proceedings

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FERREIRA, J. S.; GRADVOHL, A. L. S. ; SILVA, A. E. A. ; COELHO, G. P. Panorama de modelos de previsão de explosões solar utilizando aprendizado de máquina. In: 2º Workshop SPAnet de Inteligência Artificial em Astronomia, 2022, São Caetano do Sul. Journal of Production and Automation, 2022. v. 5. p. 10-15.

GRADVOHL, A. L. S. Forecasting Solar Flares with Machine Learning Algorithms. In: Workshop on Artificial Intelligence in Astronomy, 2021. Journal of Production and Automation, 2021. v. 4. p. 3-7.

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OLIVEIRA, F.; GRADVOHL, A. L. S. Estudos sobre a medição do desempenho de sistemas de processamento de fluxos de dados. In: 7ª Escola Regional de Alto Desempenho em São Paulo, 2016, São Paulo. 7ª Escola Regional de Alto Desempenho, 2016.

GRADVOHL, A. L. S. Metalanguage for high performance computing on hybrid architectures, 2013, Florianópolis. Computer on the Beach 2013. Florianópolis, 2013. p. 279-281.

MORAES, M. B.; GRADVOHL, A. L. S. Feasibility of the Python programming language to develop HPC applications, 2013, São Carlos. Anais da IV Escola Regional de Alto Desempenho de São Paulo. São Carlos, 2013. v. 1. p. 147-150.

TOITO, V. R. N.; GRADVOHL, A. L. S. Parallelization of the k-medoids algorithm for weak signals clustering, 2013, São Carlos. Anais da IV Escola Regional de Alto Desempenho de São Paulo. São Carlos, 2013. p. 94-97.

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GRADVOHL, A. L. S. Free software to build for high performance computing grids. 2008, Porto Alegre. Anais do IX Workshop de Software Livre, 2008.

Summary published in conferences proceedings

CAVALLARO, V. C. S. ; SPIANDORELLO, S. C. ; GRADVOHL, ANDRÉ L. S. . Avaliação do Índice de Transformação Digital CESAR nas Organizações do Município de Bragança Paulista. In: III Congresso Brasileiro Interdisciplinar em Ciência e Tecnologia, 2022, Diamantina. Anais do Congresso Brasileiro Interdisciplinar em Ciência e Tecnologia, 2022.

LIMA, A. L. F. S. ; GRADVOHL, A. L. S. . Analysis of Solar Images at Different Wavelengths to Identify Active Regions in the Sun. In: XXIX CONGRESSO DE INICIAçãO CIENTíFICA DA UNICAMP, 2021, Campinas. Anais do XXIX Congresso de Iniciação Científica da UNICAMP, 2021.

VIEIRA, L. B. ; GRADVOHL, A. L. S. . Atividades dinâmicas para o ensino de segurança da informação em dispositivos para Internet das Coisas. In: XXVIII Congresso de Iniciação Científica da Unicamp, 2020, Campinas.

OLIVEIRA, L. S.; GRADVOHL, A. L. S. Using deep learning to identify and classify sunspots in magnetograms. In: XXVII Congresso de Iniciação Científica da UNICAMP, 2019, Campinas. Campinas: UNICAMP, 2019. v. 27.

FERNANDES, M. E. R.; GRADVOHL, A. L. S. Using deep learning to predict solar explosions using magnetograms. In: XXVI Congresso de Iniciação Científica da UNICAMP, 2018, Campinas. Campinas: UNICAMP, 2018. v. 26.

MAGOSSI, M. V.; GRADVOHL, A. L. S. Dynamic activities for fixing concepts of Computer Architecture and Organization undergraduate classes. In: XXIV Congresso de Iniciação Científica da UNICAMP 2016, 2016. v. 2.

GRAVENA, F. M.; GRADVOHL, A. L. S. Prospecting and proposing interactive activities for learning the concepts of Computer Organization and Architecture undergraduate class. In: XXIV Congresso de Iniciação Científica da UNICAMP 2016, 2016. v. 2.

SANTOS, V. M.; GRADVOHL, A. L. S. Feasibility of the SunPy environment for analyzing solar data using Python. In: XXIV Congresso de Iniciação Científica da UNICAMP 2016, 2016. v. 2.

GUIMARÃES, T. D.; GRADVOHL, A. L. S. High performance computing applied to mathematical modeling, 2012, Campinas. Caderno de Resumos do XX Congresso Interno de Iniciação Científica da UNICAMP. Campinas: Editora da Unicamp, 2012. v. 1. p. 459-459.

ANDRIJAUSKAS, F.; GRADVOHL, A. L. S. Treatment of astronomical images using high performance processing architectures, 2011, São José dos Campos. II Escola Regional de Alto Desempenho de São Paulo, 2011.

Works' Presentations

GRADVOHL, A. L. S. High-Performance Ensembles of Online Sequential Extreme Learning Machine for Regression and Time Series Forecasting.

GRADVOHL, A. L. S. Metrics and Tool for Evaluating Data Stream Processing Systems. 2018.

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Patented or Registered Software

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Other Kinds of Technical Production

GRADVOHL, A. L. S.; Coluci, V. R. Introduction to High Performance Computing. 2011. (Short Course Taught/Extension).

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SMITH, A. M. et al. Elevating the Role of Software as a Product of the Research Enterprise. arXiv:1907.06981. (Preprint).

Talks

GRADVOHL, A. L. S. The Research in the Cloud: Tools on the Internet to Organize and Produce your Academic Work. 2018. https://doi.org/10.5281/zenodo.1239166

GRADVOHL, A. L. S. Technologies, Research and Challenges for Distributed Systems for Data Stream Processing. 2018. https://doi.org/10.5281/zenodo.1238933

GRADVOHL, A. L. S. The convergence between Computing and Astronomy: the case of the Space Weather forecasting. 2018, 2021. https://doi.org/10.5281/zenodo.1255029

Outreach on Media (most of them in Portuguese)

GRADVOHL, A. L. S. Tudo que você sempre quis saber sobre criptografia e não perguntou. 2018. (Newspaper/Magazine Interview).

GRADVOHL, A. L. S. IEEE alerta sobre os principais riscos cibernéticos. 2018. (Newspaper/Magazine Interview).

GRADVOHL, A. L. S. Qual o potencial da Inteligência Artificial na cibersegurança?. 2018. (Newspaper/Magazine Interview).

GRADVOHL, A. L. S. Why AI Could be Cybersecurity?s Next Big Thing. 2018. (Newspaper/Magazine Comments).

GRADVOHL, A. L. S. Depois do Facebook, sistema eleitoral brasileiro pode estar em risco. 2018. (Newspaper/Magazine Interview).

GRADVOHL, A. L. S. Urnas eletrônicas no Brasil realmente estão seguras?. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Fake news sem freio. 2018. (Newspaper/Magazine Comments).

GRADVOHL, A. L. S. Justiça eleitoral diz que eliminou fragilidade das urnas eletrônicas. 2018. (Newspaper/Magazine Comments).

GRADVOHL, A. L. S. Maioria do STF suspende voto impresso nas eleições de outubro. 2018. (Newspaper/Magazine Comments).

GRADVOHL, A. L. S. Segurança nas eleições 2018. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Promessa de Boicote. 2018. (Newspaper/Magazine Comments).

GRADVOHL, A. L. S. Urnas eletrônicas - 'Não há sistema totalmente seguro'. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Blockchain: a revolução que também vai chegar ao setor de seguros. 2018. (Newspaper/Magazine Comments).

GRADVOHL, A. L. S. Segurança nas eleições brasileiras. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Professor diz que voto eletronico é vulnerável. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Como a blockchain pode revolucionar a forma como votamos?. 2018. (Radio Program/TV Comments).

GRADVOHL, A. L. S. Segurança nas eleições brasileiras. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Em direção aos mistérios do astro-rei. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Pesquisas sobre o Clima Espacial. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Grupo prevê ocorrência de fenômenos solares. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Membro sênior do IEEE (Instituto de Engenheiros, Eletricistas e Eletrônico) e professor da Unicamp, André Gradvohl fala sobre a sonda solar. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. La amenaza de la privacidad ante el avance tecnológico, a examen en Futurecom. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Profissionais de tecnologia digital ganham mais espaço no mercado de trabalho. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. IEEE debate segurança e privacidade com avanço da tecnologia, na FutureCom 2018. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. Ciberataques podem ameaçar as eleições. 2018. (Radio program/TV Interview).

GRADVOHL, A. L. S. O potencial da Internet das Coisas e do Big Data no Brasil. 2017. (Newspaper/Magazine Interview).

GRADVOHL, A. L. S. Campinas é centro de oportunidades no mercado de TI e disputa profissionais. 2013. (Radio program/TV Interview).

GRADVOHL, A. L. S. Pesquisador desenvolve TV interativa com acesso à web. 2005. (Newspaper/Magazine Interview).

GRADVOHL, A. L. S. Integração da Televisão com Internet é Tema de Pesquisa. 1998. (Newspaper/Magazine Interview).

Academic advisory

Current Ph.D. Thesis Supervision

Luís Fernando Lopes Grim. Automatic analysis of magnetogram sequences for solar flares forecasting. Begin: 2020. Ph.D. in Technology. Universidade Estadual de Campinas. (Advisor).

Juliana Sabino Ferreira. Space Weather Forecasting using machine learning techniques. Begin: 2021. Ph.D. in Technology. Universidade Estadual de Campinas. (Advisor).

Current Master's Thesis Supervision

Tulio Santos de Souza. Early detection of server attacks. Begin:2024. Masters in Technology. Universidade Estadual de Campinas. (Advisor).

Supervised Ph.D.

Tiago Cinto. Solar flare forecasting: a methodology to automate the design of classifiers for events of diverse classes. 2020. Ph.D. in Technology - Universidade Estadual de Campinas. (Advisor).

Supervised Masters' of Science

Felipe Carreiro Marchi. Studies on indoor positioning and tracking algorithms using BLE Beacons. 2023. Masters in Technology. Universidade Estadual de Campinas. (Advisor).

Natascha Sander de Abreu. Feasibility of implementing cryptographic algorithms in IoT devices. 2023. Masters in Technology. Universidade Estadual de Campinas. (Advisor).

Matheus Ferraz da Silveira. Analysis of security aspects of the Internet of Things and proposals for improvements. 2021. Masters in Technology - Universidade Estadual de Campinas. (Advisor).

Rafael Sanches Rocha. Ad hoc network in natural disasters: specification and simulation of a smartphone-based solution to locate victims. 2020. Masters in Technology - Universidade Estadual de Campinas. (Advisor).

Fernanda Ribeiro. Machine Learning techniques applied to the solar flares forecasting. 2020. Masters in Technology - Universidade Estadual de Campinas. (Advisor).

Matheus Bernardelli de Moraes. Performance evaluation of attribute selection algorithms applied to data streams classification with concept drifts. 2019. Masters in Technology - Universidade Estadual de Campinas. (Advisor).

Thiago Eduardo Gouvêa Andrade. Improved detection of concept changes in online data streams. 2018. Masters in Technology - Universidade Estadual de Campinas. (Co-advisor).

Luís Fernando Lopes Grim. High-performance Ensembles of the Online Sequential Extreme Learning Machine algorithm for time-series regression and prediction. 2018. Masters in Technology - Universidade Estadual de Campinas. (Advisor).

Fabio Andrijauskas. Detection of solar filaments using parallel processing in hybrid architectures. 2013. Masters in Technology - Universidade Estadual de Campinas. (Advisor).

Supervised Undergraduate Scientific Initiations

Nataly Stychnicki. Software for 3D Visualization of the Sun. Begin: 2023. Scientific Initiation (Undergraduate Student in Processes Management) - Universidade Estadual de Campinas. (Advisor).

Natalia Emboava. Offensive security in exploiting vulnerabilities in IoT devices through command and control techniques. Begin: 2023. Scientific Initiation (Undergraduate Student in Processes Management) - Universidade Estadual de Campinas. (Advisor).

Vanessa Cypriano de Souza Cavallaro. Evaluation of the CESAR digital transformation index in organizations in the city of Bragança Paulista. Begin: 2021. Scientific Initiation (Undergraduate Student in Processes Management) - Universidade Estadual de Campinas. (Advisor).

Ana Luísa Fogarin de Sousa Lima. Analysis of solar images at different wavelengths to identify active regions in the Sun. 2021. Scientific Initiation (Undergraduate Student in Information Systems) - Universidade Estadual de Campinas. (Advisor).

Larissa Benevides Vieira. Dynamic activities for teaching information security in the Internet of Things devices. 2020. Scientific Initiation (Undergraduate Student in Information Systems) - Universidade Estadual de Campinas. (Advisor).

Letícia Sousa de Oliveira. Automatic Magnetograms analysis for identification and classification of Sun active regions. 2019. Scientific Initiation (Undergraduate Student in Information Systems) - Universidade Estadual de Campinas. (Advisor).

Matheus Dias Queiroz. Study of Man in the Middle attack in IPv4 to IPv6 transition scenarios. 2017. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Matheus Evers Rodrigues Fernandes. Use of Deep Learning to classify solar explosions using magnetograms. 2017. Scientific Initiation (Undergraduate Student in Information Systems) - Universidade Estadual de Campinas. (Advisor).

Nahara Calcidoni Pacheco. Review of the SEA System and analysis of space weather phenomena related to Sunpy subpackages. 2017. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Thaís Veinert Teche. Analysis of the Multi-layer Perceptrons applied to solar flares forecasting. 2016. Scientific Initiation (Undergraduate Student in Information Systems) - Universidade Estadual de Campinas. (Advisor).

Vinícius Mattos dos Santos. Study of the potential of SunPy for of solar data analysis in Python. 2015. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Michael André Domingues. Comparison between new programming models for heterogeneous architectures. 2013. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Stéphano Siqui Santos Bruschi Osório. Performance analysis of genetic algorithms on heterogeneous architectures. 2013. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Lilian dos Santos Coelho Affonso. GPGPUs parallelization of an algorithm for optimization based on artificial immune systems. 2013. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Vivian Renata Nunes Toito. Parallelization of the K-medoids algorithm for weak signals clustering. 2012. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Matheus Bernardelli de Moraes. Feasibility of the Python programming language to develop high performance computing applications. 2012. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).

Thamires Dupre Guimarães. High-performance computing applied to the mathematical modeling. 2011. Scientific Initiation (Undergraduate Student in Systems Analysis and Development) - Universidade Estadual de Campinas. (Advisor).