PUBLICATIONS

Table 1: Summary of publications

International journals	9
International conferences	24
National conferences	7
Project proposals	2
Journal papers under review	3
Tutorials	2
Other	3
Total	50

Selected publications:

[**1**] Carneiro, T.; Melab, N.; Hayashi, A.; Sarkar, V. Towards Chapel-based Exascale Tree Search Algorithms: dealing with multiple GPU accelerators. In: The International Conference on High Performance Computing & Simulation - HPCS 2020 - held in March 2021. **Outstanding Paper Award - HPCS 2020**.

[**2**] Carneiro, T.; Kayraklioglu, E.; Helbecque, G.; Melab, N. Investigating Portability in Chapel for Tree-based Optimization on GPU-powered Clusters. The 30th International European Conference on Parallel and Distributed Computing - Europar 2024. 10.1007/978-3-031-69583-4_27.

[**3**] Carneiro, T.; Gmys, J.; Melab, N.; Tuyttens, D. Towards Ultra-scale Branch-and-Bound Using a High-productivity Language. Future Generation Computer Systems, 105: 196-209 (2020). 10.1016/J.future.2019.11.011.

[**4**] Carneiro Pessoa, T.; Gmys, J.; de Carvalho Junior, F. H.; Melab, N.; Tuyttens, D. GPU-accelerated Backtracking Using CUDA Dynamic Parallelism. Concurrency and Computation: Practice and Experience, Wiley Online Library, 30(9): e4374 (2018). 10.1002/cpe.4374.

More information about my publication record can be found in my Google Scholar [1], Orcid (0000-0002-6145-8352) and Web Of Science (J-3061-2019) profiles.

Publications presented in reverse chronological order.

International journal publications:

[**2023**] Helbecque, G.; Gmys, J.; Carneiro, T.; Melab, N.; Bouvry, P. Parallel distributed productivity-aware tree-search using Chapel. Concurrency and Computation: Practice and Experience. 10.1002/cpe.7874.

[**2023**] de Souza, A.B.; do Rego, P.A.L; Carneiro, T.; Rocha, P.H.G; de Souza, J.N; Chamola, V. A Bee Colony-based Algorithm for Task Offloading in Vehicular Edge Computing. IEEE Systems Journal (2023). 10.1109/JSYST.2023.3237363

[**2021**] de Souza, A.B.; do Rego, P.A.L; Carneiro, T.; Rocha, P.H.G; de Souza, J.N. A Context-Oriented Framework for Computation Offloading in Vehicular Edge Computing using WAVE and 5G Networks. Vehicular Communications, 32: 100389 (2021). 10.1016/j.vehcom.2021.100389

[1] https://scholar.google.com/citations?user=aHpFVBMAAAAJ

[**2020**] Carneiro, T.; Gmys, J.; Melab, N.; Tuyttens, D.Towards Ultra-scale Branch-and-Bound Using a High-productivity Language. Future Generation Computer Systems, 105: 196-209 (2020). doi 10.1016/J.future.2019.11.011.

[**2020**] Gmys, J.; Carneiro, T.; Melab, N.; Tuyttens, d.; Talbi, E-G. A Comparative Study of High-productivity High-performance Programming Languages for Parallel Metaheuristics. Swarm and Evolutionary Computation, 57:100720 (2020). doi 10.1016/j.swevo.2020.100720.

[**2020**] Souza, A.B.; Rego, P.A.L.; Carneiro, T.; Rodrigues, J.D.C.; Rebouças Filho, P.P.; De Souza, J.N; Chamola, V.; Sikdar, B.; de Albuquerque, V.H.C. Computational Offloading for Vehicular Environments: A Survey. IEEE Access. doi 10.1109/ACCESS.2020.3033828.

[**2019**] Almeida, J.S.; Rebouças Filho, P.P.; Carneiro, T.; Wei, W.; Damasevicius, R.; Maskeliunas, R.; de Albuquerque, V.H.C. Detecting Parkinson's Disease With Sustained Phonation and Speech Signals Using Machine Learning Techniques. Pattern Recognition Letters, 125: 55-62 (2019). doi 10.1016/J.patrec.2019.04.005.

[**2018**] Carneiro, T.; Medeiros da Nóbrega, R.V; Nepomuceno, T.; Bian, G-B; de Albuquerque, V.H.; Rebouças Filho, P.P. Performance Analysis of Google Colaboratory as a Tool for Accelerating Deep Learning Applications. IEEE Access, 6: 61677-61685 (2018). doi 10.1109/ACCESS.2018.2874767.

[**2017**] Carneiro Pessoa, T.; Gmys, J.; de Carvalho Junior, F. H.; Melab, N.; Tuyttens, D. GPU-accelerated Backtracking Using CUDA Dynamic Parallelism. Concurrency and Computation: Practice and Experience, Wiley Online Library, 30(9): e4374 (2017). doi 10.1002/cpe.4374.

Peer-reviewed international conferences:

[**2024**] Carneiro, T.; Kayraklioglu, E.; Helbecque, G.; Melab, N. Investigating Portability in Chapel for Tree-based Optimization on GPU-powered Clusters. The 30th International European Conference on Parallel and Distributed Computing – Europar 2024. doi 10.1007/978-3-031-69583-4_27.

[**2024**] Helbecque, G.; Carneiro, T.; Gmys, J.; Melab, N.; Bouvry, P. PGAS Data Structure for Unbalanced Tree-Based Algorithms at Scale. The 24th International Conference on Computational Science – ICPP 2024. doi 10.1007/978-3-031-63759-9_13.

[**2024**] Helbecque, G.; Ezhilmathi, K.; Carneiro, T.; Melab, N.; Bouvry, P. A Chapel-based Multi-GPU Branch-and-bound Algorithm. The 22nd International Workshop on Algorithms, Models and Tools for Parallel Computing on Heterogeneous Platforms – Heteropar 2024, Europar 2024 workshop.

[**2023**] de Carvalho Junior, F.H; Carneiro, T. A Component Model for Multilevel Parallel Programming. SBLP 2023 – 27th Brazilian Symposium on Programming Languages. doi 10.1145/3624309.3624318.

[**2023**] Helbecque, G. ; Gmys, J.; Carneiro, T.; Melab, N.; Bouvry, P. Towards a scalable load balancing for productivity-aware tree-search. The 10th Annual Chapel Implementers and Users Workshop (CHIUW 2023).

[**2023**] Helbecque, G. ; Gmys, J.; Carneiro, T.; Melab, N.; Bouvry, P. Productivity-aware Parallel Distributed Tree-Search for Exact Optimization. International Conference on Optimization and Learning (OLA 2023).

[**2022**] Carneiro, T.; Koutsantonis, L; Melab, N; Kieffer, E; Bouvry, P. A Local Search for Automatic Parameterization of Distributed Tree Search Algorithms. In: 12th IEEE Workshop Parallel / Distributed Combinatorics and Optimization - IPDPS 2022 Workshops (PDCO 2022). doi 10.1109/IPDPSW55747.2022.00132.

[**2022**] Helbecque, G.; Gmys, J.; Carneiro, T.; Melab, N.; Bouvry, P. A performance-oriented comparative study of the Chapel high-productivity language to conventional programming environments. In: Proceedings of the Thirteenth International Workshop on Programming Models and Applications for Multicores and Manycores – PMAM '22. doi 10.1145/3528425.3529104.

[**2021**] Carneiro, T.; Melab, N.; Hayashi, A.; Sarkar, V. Towards Chapel-based Exascale Tree Search Algorithms: dealing with multiple GPU accelerators. In: The International Conference on High Performance Computing & Simulation - HPCS 2020 - held in March 2021. **Outstanding Paper Award**.

[**2021**] Koutsantonis, L.; Carneiro, T.; Kieffer, E.; Pinel, F.; Bouvry, P. A Data-Driven Reconstruction Technique based on Newton's Method for Emission Tomography. In: The 2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (IEEE NSS-MIC). doi 10.1109/NSS/MIC44867.2021.9875621.

[**2021**] Koutsantonis, L.; Makki, A.; Carneiro, T.; Kieffer, E.; Bouvry, P. A Bayesian Optimization Approach for Attenuation Correction in SPECT Brain Imaging. In: The 2021 IEEE Nuclear Science Symposium and Medical Imaging Conference (IEEE NSS-MIC). doi 10.1109/NSS/MIC44867.2021.9875691.

[**2020**] de Souza, A.B; Rego, P.A.L; Rocha, P.H.G; Carneiro, T.; Souza, J.N. A Task Offloading Scheme for WAVE Vehicular Clouds and 5G Mobile Edge Computing. In: IEEE Global Communications Conference - Globecom 2020. doi 10.1109/GLOBECOM42002.2020.9348130

[**2020**] Nepomuceno, T.; Carneiro, T.; Maia, P; Nepomuceno, T.; Adnan, M.; Martin, A. Autoiot: a framework based on user-driven MDE for generating IoT applications. In: ACM/SIGAPP Symposium on Applied Computing - SAC 2020. doi 10.1145/3341105.3373873.

[**2019**] Carneiro, T.; Melab, N. An Incremental Parallel PGAS-based Tree Search Algorithm. In: The 2019 International Conference on High Performance Computing & Simulation - HPCS 2019, pp. 19-26, doi 10.1109/HPCS48598.2019.9188106.

[**2019**] Carneiro, T.; Melab, N. Productivity-aware Design and Implementation of Distributed Tree-based Search Algorithms. In: The International Conference on Computational Science - ICCS 2019. Lecture notes in computer science, vol. 11536 (253-266), Springer. DOI: 10.1007/978-3-030-15996-2_2.

[**2018**] Carneiro, T.; Gmys, J.; Melab, N.; de Carvalho Junior, F. H.; Rebouças Filho, P.P.; Tuyttens, D. Dynamic Configuration of CUDA Runtime Variables for CDP-based Divide-and-conquer Algorithms. In: 13^{th} International Meeting on High Performance Computing for Computational Science - VECPAR 2018. Lecture notes in computer science, vol. 11333 (16-30), Springer. doi 10.1007/978-3-030-15996-2_2.

[**2018**] Nepomuceno, T.; Carneiro, T.; Korn, C.; Martin, A. A GUI-based Platform for Quickly Prototyping Server-side IoT Applications. In: European Conference on Smart Objects, Systems and Technologies - Smart Systech 2018. Print ISBN: 978-3-8007-4694-1

[**2016**] Pessoa, T.C.; Gmys, J.; Melab, N.; de Carvalho Junior, F.H.; Tuyttens, D. A GPU-based Backtracking Algorithm for Permutation Combinatorial Problems. In: Algorithms and Architectures for Parallel Processing - IC3APP 2016. Lecture notes in computer science, vol. 10048 (310-324), Springer. doi 10.1007/978-3-319-49583-5_24.

[**2014**] Pinheiro, A.B.; de Carvalho Junior, F.H.; Arruda, N.G.P.B.; Carneiro, T. Fusion: abstractions for multicore/manycore heterogenous parallel programming using GPUs. In: Brazilian Symposium on Programming Languages - SBLP 2014. Lecture notes in computer science, vol. 8771 (109-123), Springer. doi 10.1007/978-3-319-11863-5_8.

[**2014**] Carneiro, T.; Arruda, N.G.P.B.; de Carvalho Junior, F.H.; Pinheiro, A.B. A Literature Review on Solving Combinatorial Optimization Problems Through the Use of GPUs - **text in Portuguese:** (*Um levantamento na literatura sobre a resolução de problemas de otimização combinatória através do*

uso de aceleradores gráficos). In: XXXV Ibero-latin American Congress on Computational Methods in Engineering - CILAMCE 2014.

[2014] Arruda, N.G.P.B.; de Carvalho Junior, F.H.; Carneiro, T.; Pinheiro, A.B. An Evaluation of Code Optimization Techniques Applied to Modern Graphics Accelerators - **text in Portuguese:** (*uma avaliação de técnicas de otimização de código aplicadas a aceleradores gráficos modernos*). In: XXXV Ibero-latin American Congress on Computational Methods in Engineering - CILAMCE 2014.

[2011] Carneiro, T.; Muritiba, A.E.; Negreiros, M.; de Campos, G.A.L. A New Parallel Schema for Branch-and-bound Algorithms Using GPGPU. In: 23*rd* International Symposium on Computer Architecture and High Performance Computing - SBAC-PAD 2011. p. 41–47. doi 10.1109/sbac-pad.2011.20.

[2011] Oliveira, T.Q. ; Pessoa, T.C. ; Cardoso, A. ; Celestino Júnior, J. Wchord: a hybrid and bio-inspired architecture to peer to peer networks. In: Third World Congress on Nature and Biologically Inspired Computing - NABIC 2011. p. 353–358. doi 10.1109/nabic.2011.6089617.

[2011] Carneiro, T.; Muritiba, A.E.F.; Negreiros, M.; de Campos, G.A.L. Solving ATSP Hard Instances by New Parallel Branch and Bound Algorithm using GPGPU. In: XXXII Ibero-latin American Congress on Computational Methods in Engineering - CILAMCE 2011.

Peer-reviewed national conferences:

[2024] de Carvalho Junior, F.H; Carneiro, T. Towards Multicluster Computing with Julia. SSCAD 2024 – XXV Brazilian Symposium on High-performance Systems. doi 10.5753/sscad.2024.244307.

[2023] de Carvalho Junior, F.H; Dantas, A.B.; Carneiro, T.; Mendes, J.; Sales, C.; Sales, Pedro A. Structured platform-aware programming. WSCAD 2023 – XXIV Brazilian Symposium on High-performance Systems. doi 10.5753/wscad.2023.235920.

[2018] Honório Filho, P.; da Silva, S.P.P.; Almeida, J.S.; Marinho, L.B.; Carneiro, T.; Rodrigues, A.W.O.; Rebouças Filho, P.P. An Approach to Navigation in Outdoor and Indoor Environments With Unmanned Aerial Vehicle Using Visual Topological Map. In: 31*st* Conference on Graphics, Patterns and Images - SIBGRAPI 2018, Workshop of Works in Progress (WIP).

[2016] Nepomuceno, T.G.; Pessoa, T.C.; Nepomuceno, T.G. Formula Optimizer: fast way to formulate and solve multi-objective combinatorial optimization problems. In: XLVIII Brazilian Symposium of Operations Research - SBPO 2016.

[2014] Arruda, N.G.P.B.; de Carvalho Junior, F.H.; Carneiro, T.; Pinheiro, A.B. Analysis of Drawbacks in Loop Unfolding Relative to GPU Associative Caches - text in Portuguese (*Análise de drawbacks no desdobramento de laços relativo a caches associativas de GPUs*). In: Symposium on High Performance Computing Systems - WSCAD 2014.

[2012] Carneiro, T.; Nobre, R.H.; Negreiros, M.; de Campos, G.A.L. Depth-first Search Versus Jurema Search on GPU Branch-and-Bound Algorithms: a case study. In: NVIDIA's GPU Computing Developer Forum. Held by the XXXII Congress of the Brazilian Society of Computer Science - CSBC 2012.

[2010] Pessoa, T.C.; Gomes, M.J.N. Jurema, a New Branch & Bound Anytime Algorithm for the Asymmetric Travelling Salesman Problem. In: XLIII Brazilian Symposium of Operations Research - SBPO 2010.

Project proposals submitted to funding agencies:

[2022] Melab, N.; Talbi, E-G.; Carneiro, T.; Gmys, J.; Danoy, G.; Bouvry, P.; Pinel, F.; Kieffer, E. *Ultra-scale Computing for solving Big Optimization Problems.* Joint project proposal between INRIA Lille -

Bonus team and the Parallel Computing & Optimisation Group (PCOG), University of Luxembourg. **Proposal submitted to the French National Research Agency** (ANR).

[2021] Along with the professors of the ParGO research group (UFC), submitted the project *Prallelism and Algorithms for Combinatorial Optimization and Complexity*. **Proposal submitted to the Foundation for Scientific Development of the Ceará State (Funcap), Ceará, Brazil**.

Papers Under Review:

[2025] Herzeel, C., Gurdeep Singh, R., Vanmeerbeeck, G., Carneiro, T., Verachtert, W., Wuyts, R. *Decentralized distributed task stealing using dependency counters*. IEEE Transactions on Parallel and Distributed Systems. Submitted on 19 Jul. 2025.

[2025] De Carvalho Junior, F. H., Carneiro, T. *Multicluster computing with Julia*. Submitted to Concurrency and Computation: Practice and Experience, SSCAD 2024 Special Issue. Submitted on 25 Jul. 2025.

[2025] Helbecque, G.; Ezhilmathi, K.; Carneiro, T.; Melab, N.; Bouvry, P. *Portable PGAS-based GPU-accelerated Branch-and-Bound Algorithms at Scale*. Submitted to Concurrency and Computation: Practice and Experience, HeteroPar 2024 Special issue. Under Major Revision.