

Bruno Magalhaes

Research Engineer for Machine Learning, HPC and Simulation

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Native in Portuguese, fluent in English and French, proficient in Spanish and fair in Slovenian



Work Experience

ongoing Sept 2019	AI Resident, Microsoft Research, Cambridge, UK
Aug 2019 Mar 2015	Doctoral Assistant > Postdoctoral Researcher, École Polytechnique Fédérale de Lausanne, Switzerland <ul style="list-style-type: none">> I researched, conceptualized, implemented and published my research work on how asynchronous runtime systems and variable step methods accelerate the simulation of detailed neural networks on networks of highly-heterogeneous compute nodes> Technologies : HPX for Parallax runtime system; global memory addressing; asynchronous communication; remote procedure calls, concurrency and threading; dynamic load-balancing; distributed computation graphs, tree-parallelism and task scheduling; vectorization and cache-optimization;> Core courses : Neuroscience - cellular mechanisms, Neuroscience - behavior and cognition, Biological modeling of neural networks and Machine learning> Teaching Assistant (400 hours) for Unsupervised and reinforcement learning in neural networks, Projects in neuroinformatics and <i>In silico</i> neuroscience <div>C C++ Python HPX-5 MPI TeX tensorflow google test TCLAP Sundials CVODE</div>
Feb 2015 Mar 2011	Research Engineer for High Performance Computing, Blue Brain Project, EPFL, Lausanne, Switzerland <ul style="list-style-type: none">> Parallel algorithms for spatial decomposition of neural networks> Parallel algorithms for distributed task-stealing programming models on neural networks> Parallel algorithms for synaptic map reconstruction via efficient distributed sparse matrix transposition> Algorithms for the distributed spatial indexing of detailed neuron morphologies <div>C C++ Message Passing Interface (MPI) OpenMP CMake IBM BlueGene/P and /Q parallel IO (MPI, HDF5)</div>
Feb 2011 Sep 2009	Junior Architect for IT infrastructures, Noble Group, Hong Kong, New York, São Paulo & London <ul style="list-style-type: none">> Network design of a contingency data centre for all EU Power & Gas trading infrastructure, London, UK> Network and infrastructure design of a port and warehouse for coffee and soy beans, Santos, Brazil> Implementation of a web-based software for metals and coffee trading, New York, USA <div>Cisco and 3Com network devices ASP.NET</div>
Oct 2008 Mar 2007	Analyst programmer, MSCI (former IPD - Investment Property Databank), London, UK <ul style="list-style-type: none">> Development of a web-based geographical system for real estate data search and analytics> Development of software for data query and warehousing <div>C# Visual Basic F# ASP.NET MS SQL Server SSIS google maps API javascript</div>

Education

Jun 2019 Mar 2015	PhD Neuroscience, École Polytechnique Fédérale de Lausanne (EPFL), Switzerland <ul style="list-style-type: none">> Thesis <i>Asynchronous Simulation of Neuronal Activity</i> awarded distinction and nominated for the Neuroscience Doctoral School excellency award for the Top 8% doctoral students, and for the IBM award for outstanding research in computational sciences> Visiting scholar at Center for Research in Extreme Scale Technologies, Indiana University (US), working with HPX developers on fine-tuning asynchronous processing of neural networks, Summers 2015-17
Sep 2009 Oct 2008	MSc Advanced Computing, Imperial College London, UK <ul style="list-style-type: none">> Thesis work researching distributed, multi-core CPU and GPU computation of large Markov models awarded distinction and published at NSMC'10. Finished degree with Merit.
Jul 2007 Oct 2002	Licenciatura (5-year BSc/BEng) Systems Engineering and Computer Science, Univ. of Minho, Portugal <ul style="list-style-type: none">> Exchange student at the University of Maribor, Slovenia, 2005/2006. Finished degree with A (Top 10%)

Miscellaneous

Publications	10+ publications in simulation, distributed and high perf. computing available on my Google scholar profile
Hobbies	Waterpolo, skiing, snowboarding, cryptocurrency trading, travelling, cooking, guitar