

DEJAN GRUBISIC

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EDUCATION

Doctor of Philosophy <i>High Performance Computing</i> Rice University GPA: 3.56	Aug. 2019 – May 2024 Houston, TX
Master of Science <i>Big Data Architectures</i> University of Novi Sad GPA: 4.00	Aug. 2018 – May 2019 Novi Sad, Serbia
Bachelor of Science <i>Electrical and Computer Engineering</i> University of Novi Sad GPA: 3.96	Aug. 2014 – May 2018 Novi Sad, Serbia

For all passed courses check here [All Courses](#)

INTERNSHIPS AND WORK EXPERIENCE

Rice University Graduate student <ul style="list-style-type: none">• Developing GPU support for large-scale profiler - HPCToolkit• Creating analysis techniques for GPU accelerated applications• Developing profiler guided optimizations based on reinforcement learning - Compiler2	Aug. 2019 – May 2024 Houston, TX
Meta Systems Machine Learning Research Intern <ul style="list-style-type: none">• Building reinforcement learning framework for optimizing tensor operations• Extending LoopTool compiler for optimizing loop nests• Building and tuning cost and policy deep learning models	May 2022 – Dec. 2022 New York City, NY
Berkeley Lab High Performance Computing Research Intern <ul style="list-style-type: none">• Profiling and analysis of power consumption on multi node GPU applications	Jun. 2021 – Sep. 2021 Berkeley, California
Rice University Research intern <ul style="list-style-type: none">• Optimization of MADNESS (Multiresolution Adaptive Numerical Environment for Scientific Simulation) in Intel CnC workframe	Jun. 2018 – Sep. 2018 Houston, TX
Institute for High Performance Microelectronics Hardware Engineer Intern <ul style="list-style-type: none">• Profiling and Analysis of FFT implementation on Xtensa Platform in C• Dhrystone Benchmark for FFT and theoretical analysis window functions	Jun. 2017 – Sep. 2017 Frankfurt O, Germany

RESEARCH AND PROJECTS

Statistical Machine Learning Kaggle challenge: NBME - Score Clinical Patient Notes <ul style="list-style-type: none">• Fine tuning Bert model to predict features from the patient notes (Python)
Artificial Intelligence Pacwar: Finding the strongest gene by using genetic algorithms <ul style="list-style-type: none">• Hill climbing, genetic algorithm, finding local hills with K-means, defining scoring function and other tricks in (Python)
Multiprocessing Lock free concurrent skip list <ul style="list-style-type: none">• Implemented using compare-and-swap atomic primitives and OpenMP (C)

Parallel Computing

Parallel algorithms in various technologies

- Parallel exploratory search of game Othello using Cilk (C++)
- LU decomposition using OpenMP (C++)
- 2.5 matrix multiplication using OpenMPI (C++)
- Bitonic sort using Cuda (CudaC++)

Compiler Construction 2

Compiler for DEMOgram language

- Compiler for custom language implemented in Flex/Bison framework (C)

Compiler Construction 1

Compiler for ILOC language

- Implementing scanner, parser, registrar allocator and instruction schedulers implemented (C++)

Master Thesis

Finding multi-source shortest path in dynamic large-scale graph, based on Lambda architecture

- Implementing batch and real-time processing algorithms (pySpark)
- Implementing storage in HDFS and communication in Kafka framework
- Creating web based application (Python Dash)
- Using Docker for containerization

Data Science

Movie profit prediction

- Predicting audience interest in movie by using logistic regression, k-nearest neighbor, support vector machines
- Predicting weekend profit for a movie by using linear regression, neural network, SVM and NaiveBayes

Bachelor Thesis

FPGA design of hardware core for acceleration of chess engine

- Analysis and design of software-hardware system using ESL methodology (SystemC)
- Implementing board evaluation module in VHDL
- Verification of design using UML methodology (SystemVerilog)

Applied Electronics

Metal Detector

- End-to-end implementation of circuit, PCB and packing with AltiumDesigner

PUBLICATIONS

Measurement and Analysis of GPU-Accelerated OpenCL Computations on Intel GPUs	Nov. 2021
International Workshop on Programming and Performance Visualization Tools	
An Automated Tool for Analysis and Tuning of GPU-accelerated Code in HPC Applications	Feb. 2021
IEEE Transactions on Parallel and Distributed Systems	
Measurement and Analysis of GPU-accelerated Applications with HpcToolkit	Nov. 2020
Parallel Computing Journal	
Finding multi-source shortest path in dynamic large-scale graph in Lambda architecture	May 2019
Faculty of Technical Sciences in Novi Sad Journal	

SKILLS

Programming Languages: C/C++, Python, CudaC, Java, Bash, VHDL

Technologies: Pthreads, OpenMP, MPI, Docker, Slurm, Spark, Linux

Featured Skills: Parallel Computing, Compiler Construction, Profiling Tools