STYLIANOS PAPAGRIGORIOU

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Education

Technical University of Crete, Crete

Spring 2012 5-year-Diploma Diploma in Electronic and Computer Engineering. Computer Science & Architecture · Electronics · Telecommunications

Thesis: "Real-Time Data-Mining on Streaming Hyper Spectral images for Medical Purposes and Diagnosis " Advisor: Prof. Minos Garofalakis, Prof. Costas Balas

Fourth Year: 7.3/10 · Fifth Year: 8.76/10 Computer Science Elective Subjects: 9.29/10 Average(Expected): 7.6-7.8/10

Pankrition Ekpaideutirion, Crete

Spring 2006 High School Graduated with Distinction · Average: 18.6/20

PROFESSIONAL ADVANCEMENT

	Seminar Series , Unoficial Study Group
Fall 2011 - Now	A series of Seminars, organized by Prof. Minos Garofalakis, aiming to provide deeper knowledge on Data Streams and Big Data Manipulation Techniques.
	Main objective was to to provide guidance on the dissertation projects of three students (myself included). Some of the subjects addressed so far are:
	Models and Tools for Centralized Stream Processing (Sampling, Sketches)
	 Models and Tools for Distributed Stream Processing
	Probabilistic Distributed Data Acquisition
	Stanford University, Online Courses
Fall 2011	Introduction to Artificial Intelligence, Prof. P. Norvig & S. Thrun \cdot Score : 86% Introduction to Databases, Prof. Jeniffer Widow \cdot Score : 310/323 Machine Learning, Prof. Andrew Ng \cdot Score : Expecting 95%+
	Enterpreneurship, Seminar Series
Fall 2011	Four seminars, 6 hours each, concerning the following domains:
	Initiating Start-Ups
	Legal Issues Concerning Start-Ups
	Innovating Ideas to Secure Funding
	Business Plan Developing

Research Interests

Research Interests

I am familiar with ample areas of Computing and mostly interested in:

- Data Mining & Databases
- Software Development
- Embedded Systems
- High Performance and Parallel/Distributed Computing

In constant search for something fresh and exciting: Either by expanding a familiar domain, or getting involved with something completely new!

TECHNICAL SKILLS

Languages	C, C++, Python, Java, JavaRMI, SQL, XHTML-CSS, Javascript, VHDL, Matlab
Languages Used	C#, PHP, JSP/JavaServlets, , Corba, XML(XPath, XQuery, XSLT), LaTeX
Tools	Hadoop Map/Reduce, TORQUE, Shell Scripting & Makefiles, GNU gcc, Eclipse, Xilinx IDE/EDK, Flex, Bison, Apache Tomcat, WordPress, Kyle
Enviroments	Linux (Mostly), Windows , TinyOS(Basic Experience)
	Extracurricular Activities
IT partner August 2011-Now	My role is to build a robust platfrom to serve GreekGrad's purpose: a user friendly website, to connect greek graduate students with jobs and companies. Reference: Chryssa Tsourakis · email : chryssats11@yahoo.gr
Web Developing December 2010	Developed the www.chocolatequeen.gr for Cholocate Queen. Reference: Zoe Pachounti · email : zoipax@gmail.com
Summer Jobs	Various summer jobs since high school including: Volunteer Lifeguarding, Waitering, Technical assisting in a gaming store, English Interpreter for an English native staying in Greece, Gas Station Assistant and MacDonald's cook.
	Honors
Technical University of Crete	Dean's List - Year 2010-2011 (Expected)
High School	Second Prize in Regional High School Physics Competition - Winter 2005 Award of Exelence - All high School Years (2000-2006)
	Certificates & Qualifications
Certificates	International English Testing System(IELTS) · 7.5/9.0
	Listening 7.5 Speaking 7.0
	Reading 9.0 Writing 7.0
	Graduate Records Examination(GRE) - General
	Verbal Reasoning 149
	Quantitative Reasoning 159
	Analytic Writing 3.5
Qualifications	Qualified Sea Lifeguard · 25 days intensive training Qualified Speedboat Driver

Personal

Qualified Diver-Snorkeler

Professional Driving License

First-Aid Training

Languages	ENGLISH · Fluent GERMAN · Intermediate GREEK · Mother Tongue
Athletic Activities	Skilled Swimmer and Free-Diver \cdot Parkour and Climbing/Hiking Enthusiast
Other Activities	Played the piano for 6 years \cdot Latin & Traditional dancing for 2.5 years
Interests	Travelling, Reading - (Science) Fiction mostly - · Table and Computer Games. I love good food, trying new activities and meeting new Cultures/Trends. <i>All in all, I am always up for a new challenge.</i>

Selected Courses

Cross Listed -	Computational Geometry - Multi-Dimensional Data
Graduate	Instructor: Prof. V. Samoladas. · Score: 10/10
	Data Processing and Manipulation on Sensor Networks.
	Instructor: Prof. A. Deligiannakis · Score: (Fall 2011 - Expected)
	Programming Massively Parallel Processors.
	Instructor: Prof. G. Papaeustathiou · Score: (Fall 2011 - Expected)
Undergraduate	Operating Systems.
	Instructor: Prof. V. Samoladas. · Score: 10/10
	Advanced Topics in Databases.
	Instructor: Prof. M. Garofalakis. · Score: 9/10
	Artificial Intelligence.
	Instructor: Prof. G. Chalkiadakis. · Score: 9/10
	Distributed Systems.
	Instructor: Prof. V. Samoladas. · Score: 9/10
	Computer Networks II.
	Instructor: Prof. A. Bletsas. · Score: 9/10
	BioMedical Technology.
	Instructors: Prof. C.Balas & M. Zervakis. · Score: Fall 2011 - Expected
	Embedded Systems.
	Instructor: Prof. G. Papaeustathiou. • Score: 9/10
	Sensors and Measurements.
	Instructor: Prof. K. Kalaitzakis. · Score: 8/10
	Optoelectronics.
	Instructor: Prof. C. Balas. · Score: 8.5/10
	Selected Projects

Diploma Thesis

Real-Time Data-Mining on Streaming Hyper Spectral Images for Medical Purposes and Diagnosis.

The Objective of the Thesis is to use state-of-the-art techniques in order to reach real-time-performance Data Mining on a Hyper Spectral Cube (an image that contains info not only for the Visible Spectrum) which updates on video rate. The outcome is expected to serve medical and diagnosis purposes and will be used for a promising project of Prof. Balas.

The Thesis will address two problems: The Segmentation/ Partitioning of the Image that will take place in the cpu, and then the Classification of each part which will take place in the gpu, creating a pipeline. For the Segmentation/Partitioning, a series of algorithms will be tested and featured in order to achieve optimal speed. The Classification part not only will it include finding the best Classification algorithm that can provide both speed and accuracy but also cleansing the training dataset from the noise and creating a golden standard for the training.

After the theoritical aproach, all the algorithms will be implemented,

featured and optimized for the C++, CUDA languages and the GPU architecture for the parts of the algorithm that will use it. Aiming for a publication.

Supervisors : Prof. M. Garofalakis, Prof. C. Balas.

Other **GIS Software Development for Sea Navigation and Routing** Our initial data were polygons that reprecented the continents. Given destination and starting points, the sea route that connects them had to be mapped. To achieve that, QuadTree algorithm is used to segment the globe into "cells". A graph is then created using the vertices of the "cells" that reside on the sea. Whenever a routing question is adressed, a k-d tree is used to find the graph vertices closest to the starting and destination points, connecting them with the graph and finally run Dijkstra's Shortest Path search on the graph. A series of problems had to be adressed: dealing with very steep areas (such as Giblartar), improving the initial route if possible and others.

The memory and speed performance of the algorithm were tested for different polygon "resolutions" (the higher the resolution the more points were describing each polygon) and presentated in front of an audience.

Skillset: Multidimensional data handling and Graph algorithms (such as K-D-Trees, QuadTree Griding, Dijkstra's Shortest Path etc), Advanced use of C++ Language and C++ Libraries (Boost, CGAL,ORG-GDAL).

Implemented a centralized algorithm for Monitoring Threshold Fuctions over Distributed Data Streams.

Based on the algorithm described in Sharfman, Schuster, Keren -SIGMOD of A Geometric Approach to Monitoring Threshold Functions over Distributed Data Streams. Multiple problems had to be addressed such as : Preserving the Causality Dependencies, preventing Race Conditions, Implementing the Distributed Algorithm and others.

The implementation was tested on a Computer Grid over differents simulations of streams and number of nodes. The results and the implementation were presented in front of an audience. Skillset: Experience with Distributed Systems (Creating a Distributed System, Synchronizing the Nodes, Theoritical Analysis to Prevent Race Conditions and Bugs etc), Experience with Java RMI, Use of TORQUE and Computer Grids.

Implementing an algorithm for parallel training Neural Networks using a GPU.

Parallel Particle Swarm Optimization (PSO) is used to define starting weights for the training session. A parallelized BackPropagation technique is then used to convenge our Neural Network to its final form. I am currently working on it and I am really confident about the speed-ups. It will be used for the needs of my Thesis. Skillset: Advanced use of CUDA and CUDA Libraries for parallel programming, Exploiting the GPU architecture for maximum speedup gain.

Featured and implemented the Grace Hash Join algorithm to be used with Hadoop Map Reduce.

The implementation was quite straight forward. The mappers were used to create the first partitions of the two relation while the reducers performed the final join.

Skillset: Big Data handling Algorithms for Databases, Experience with Hadoop Map-Reduce platform.

Implemented Aproximate Count Aggregate Operator for the Postgres DBMS.

Based on Metwally, Agrawal, El Abbadi -2005 "Efficient Computation of Frequent and Top-k Elements in Data Streams". Skillset: Experience with Approximate Aggregate Queries on Databases, Experience with the backend structure of a Database System.

Smart Othello (also known as Reversi) Agent.

An Othello(or Reversi) Agent was Developed. The agent is able to connect to a server, get the current board situtation and return a move. The game uses a 10x10 board not the traditional one. The agent has a total time of play of 200 seconds (for the whole game) and has to limit its search according to its time left - it usually reaches 6-8 level depth. While searching the tree the agent keeps in memory only the board state of the tree node as well as the moves played to reach it. This way a minimal requirement of memory is needed. Skillset: Basic Knowledge of game theory, Experience with search algorithms in adversarial enviroments (minimax-pruning, NegaScout etc), Move Ordering techniques, Coding optimization and tricks for optimal memory use.

Implemented Game Of Life on an FPGA.

The famous mathematical "Game Of Life" was coded in VHDL and imported into a Spartan-6 FPGA. Our component had to cooperate with a microblaze processor. A starting pattern was loaded to the fpga through a Serial port. Every step was sent back through the same port and was visualized on the screen with the use of a GUI-driver we had created.

Skillset: Experience with Approximate Aggregate Queries on Databases, Experience with the backend structure of a complete functional Database System.

Web Server Development.

The goal of the project was to develop a server that can provide online browsing of the contents of the pc the server is installed to, and be able to withstand heavy traffic. Cache and thread pool had to be customely created. Implemented in C.

Skillset: Experience with Sockets and Multithreaded Architectures, Expertise with C and the low level structure of Servers.

December 29, 2011

REFERENCES: AVAILABLE UPON REQUEST