Arvanitis Christos

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EDUCATION

National Technical University of Athens *2014 - Present*
Undergraduate Student Expected GMO: 8.3/10
5-Year Integrated Curriculum, Equivalent to Master of Engineering
Department of Electrical and Computer Engineering

SUMMARY

An undergraduate Electrical and Computer Engineering student with theoretical background, fieldwork and professional experience in a variety of fields including Computer Systems, Software, Computer Networks and Biomedical Engineering. Skillful and efficient, multifaceted in terms of technology stacks, always eager to broaden knowledge and optimize existing implementations.

TECHNICAL STRENGTHS & SKILLS

Programming Languages	C/C++, Python, Java, PHP, Javascript, Bash, Perl, SML, Assembly(8085/86,AVR,ARM), Matlab, R, Verilog HDL
Software & Tools	LaTeX, Git, Octave, Matlab, Docker, Vagrant, LXC, Kubernetes, WEKA, tcpdump, QEMU, make/CMake, criu
Operating Systems	Linux, Unix, BSD, Windows
Databases	MySQL, MongoDB
Languages	Greek (native), English (Full professional experience), French (Elementary experience)

WORKING EXPERIENCE

Oxcart Design Studio October 2018 - March 2019
In-house Facebook page parser/aggregator using Graph API

- Development of WordPress plugin for the aggregator using PHP, Angular/JavaScript, Bootstrap 4 and MySQL. Features include asynchronous content loading and local media caching.
- Design of periodic caching system for Graph API usage limits compliance, MySQL query optimization and REST API implementation for client websites.

CURRENT PROJECTS

Diploma Research - Computer Systems Laboratory
National Technical University of Athens

- Thesis: Remote fork implementation and process migration using checkpoint/restore technologies.
- Advisors: Stefanos Geraggelos(), Nektarios Koziris()

Libreoffice Page Numbering Add-on
Main developer - Maintainer

- Implementation of page numbering interface and logic for LibreOffice/OpenOffice in Python/Basic.
- Second most popular extension after one year of release with best acceptance ratio (up-votes to down-votes) on official Libreoffice extensions website.
- Translated in multiple languages from the community.

PAST PROJECTS

LibreOffice customization & design of legal templates April 2018 - August 2018
Google Summer of Code 2018 for GFOSS-Open Technologies Alliance

- Development of specific LibreOffice UI customizations and extensions for increased clerical officer productivity, usage and code documentation as well as deployment and testing on Greek Council of State.
- Automate editing and creation of Greek legal documents as an alternative to non-standard templates using open source software for Greek Public Services departments.

Measurement & characterization scripts for ReRAM modules November 2018 - May 2019
NTUA Electronic Nanomaterials and Devices Group

- Development of C/C++ automation scripts compatible with Keithley 4200S hardware.
- Implementation of characterization and stress testing algorithms for NVM memory modules. [More info here]

VirtIO Paravirtualized cryptographic character device for QEMU-KVM
Operating Systems Lab: C, Sockets, QEMU, cryptodev

Home security system implementation on AVR featuring control panel, LCD module and timer countdowns
Microprocessors Lab: AVR assembly, C

Full-stack price observatory service
Software engineering course: Node.js REST API, MongoDB, HTML5, Bootstrap 4, JavaScript/AngularJS, css/sass, Docker(deployment), Groovy(unit testing), gulp.js(build automation)

Wireless Mesh Sensor Network driver
Operating Systems Lab: C for character device kernel module development, Sockets

Optimization of Parallel Hierarchical One Dimensional Search algorithm in C, custom kernel & software cross compiling for ARM architecture using crosstool/linaro
Embedded Systems course: C, Linux kernel, System call implementation, crosstool toolchain, make, ARM

Cache Hierarchy Simulation Using Intel Pintool
Advanced Computer Architecture course

Car rental service implementation
Databases course: HTML5, Bootstrap 3, AngularJS, PHP, MySQL

Askfetch - Linux system information script with modular architecture
Personal project: Bash, systemd

SIGNIFICANT COURSES

Operating systems
OS concepts. OS as a user-machine link. Evolution of OSs, I/O, buffers, process concurrency, critical sections, deadlocks. Process interaction, synchronization and inter-process communication. CPU scheduling. Memory management (static and dynamic allocation, virtual memory, paging, segmentation). File management. Filesystems. Disk scheduling. Laboratory projects: Development of a Linux based simulated operating system, implementation of a Round-Robin process scheduler, development of distributed programming applications for Linux (client-server sockets), development of process cgroups control panel, implementation of a Linux character device driver and the implementation of para-virtualized cryptographic device driver for optimized performance.

Micro-processors lab
Laboratory exercises on 8085/x86/AVR microprocessor assembly programming. Assembler/debugger usage. I/O Techniques, subroutines and interrupts. Interfacing with external units. Design and implementation of automation systems on microprocessor platforms. Micro-

controller programming, peripherals and applications. Memory systems and technology, reference methods and direct memory access (DMA). Architecture and programming of AVR micro-controllers in C/assembly. Introduction to RISC and 32-bit processors.

Programming Languages I

Design concepts and implementation of programming languages. Elements of compiler construction, syntax analysis, context-free grammars. Data types, control structures, binding and scope, parameter passing, memory management. Abstract data types, classes and encapsulation. Object-oriented programming, inheritance and polymorphism. Concurrency and exception handling. Representative imperative languages (C++, Java). Functional/Logic programming (SML/Prolog).

Databases

Database Management Systems and architecture. Data Structures for databases. The Entity Relationship Model. Classical data models (Hierarchical, Network). The Relational Model. Database management languages. SQL. File Systems and Physical database design. Logical Design and Normalization Theory. Operational and Management topics (integrity, optimization, redesign, security, privacy, recovery, administration, etc.) Current research topics (object-oriented systems, multimedia databases, web databases, etc.)

Artificial Intelligence

Problem solving, search algorithms, heuristic methods, game playing, theorem proving and the use of logic for problem solving. Prolog. Knowledge representation. Semantic networks, logic representations, frames, deductive systems and knowledge systems. Planning, machine learning and natural language processing.

Algorithms & Complexity

Asymptotic program analysis techniques and algorithm selection criteria. Priority queues, binary heaps, union-find. Data manipulation: sorting, search, selection. Algorithm design techniques: divide and conquer, dynamic programming, greedy algorithms. Graph theory applications (DFS, BFS, MSTs, topological search, shortest path, max flow, minimum cut). Algebraic problems (polynomials evaluation, matrix multiplication). Polynomial-time algorithms. NP-complete problems. Series of algorithm implementations in C/C++.

Computer Networks & Telecommunication Systems Simulation

Fundamental transmission technologies and protocols, Internet protocols: IP, ARP, ICMP, UDP, TCP, DNS, routing protocols (RIP, OSPF, BGP), network management protocols (SNMP), and application-level protocols (FTP, TFTP, TELENET, SSH, HTTP, HTTPS, DNS, DHCP, SMTP). Laboratory experiments, using Virtual Machine topologies, on the aforementioned protocols, IP networks, routing, forwarding, domain name system, network address translation, network management and multicasting by capturing and analyzing traffic generated by applications

Embedded Systems Design

Modeling of Embedded Systems: Computational Models, High-level programming languages. Program Design and Analysis: Programs modeling, High-level transformations, compilers for embedded systems, code optimization. Embedded Systems hardware: multiprocessor/core Architectures (MPSOC), CPUs, Networks and Interconnect Topologies, Memory Hierarchies/Management units. Embedded Systems Software: Real-time OSs, Scheduling of Real-Time Systems. Embedded Systems implementation: Hardware-Software Co-design, Design Platforms, Hardware and Software partitioning, Performance Analysis, Co-synthesis Algorithms. Verification: Hybrid Systems verification, Simulation and Emulation, Testing, Fault Simulation, Risk Analysis, Reliability.

EXTRACURRICULAR

Solving capture the flag riddles covering a wide field of Linux and Network topics.

Translating open source software, mainly XFCE projects, using Transifex.

Participating in Linux relevant topics at Greek Linux Users community forum.

Karate athlete - n times national medalist (2012 2016) and former member of Greek National selection team.

Long distance running (10km).