Anthony Dimitri Agnesina

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EDUCATION

Georgia Institute of Technology — Atlanta, GA
Ph.D. in Electrical & Computer Engineering — *Aug. 2017 - Present*
Advisor : Prof. Sung Kyu Lim
Fields : EDA, VLSI, Machine Learning

Georgia Institute of Technology — Atlanta, GA
M.S. in Electrical & Computer Engineering — *May 2017*

CentraleSupélec — Gif-sur-Yvette, France
Diplôme d'Ingénieur — *Sep. 2016*
Fields : Electrical Engineering & Computer Science

RESEARCH EXPERIENCE

- **Research Assistant, Georgia Institute of Technology**, Aug. 2017 - Present.
  - ◇ **A 3D Rad Hard SSD For High Performance Space Computers (NASA)**
  - ◇ **Bringing 3D DRAM Memory Cubes to Space (NASA)**
  - ◇ **Machine Learning for FPGA Compilation (NSF CAEML)**
- **Research Student, Georgia Tech-CNRS Laboratory**, Jan. - May 2016.
  - ◇ **Terahertz Imaging for Nondestructive Evaluation and Material Characterization :** We explored the potentials of applying signal processing techniques to THz imaging for NDE and material characterization. Notably, using deconvolution techniques, we were able to extract from THz images the complex refractive indexes of materials made of multiple layers.
- **Research Student, Signals and Systems Laboratory, CentraleSupélec**, Sep. 2013 - Dec. 2015.
  - ◇ **Hidden Markov Chain Filters** : We designed Baum-Welch and Viterbi algorithms to delineate DNA sequence motifs.
  - ◇ **Algorithmics for relational queries in large graphs** : We implemented algorithms in Java for the Neo4j graph database platform in order to discover missing links in large relational graphs.
  - ◇ **Mixed-signal Class-D Amplifier** : From RTL to chip layout, we designed and validated a high fidelity digital analog integrated amplifier.
  - ◇ **Karsilayan-Schaumann Active Inductor** : Full chip design of a high-Q factor, high-frequency, and large active negative inductor in 350nm CMOS technology, for bandwidth enhancement applications.

PUBLICATIONS

CONFERENCE PAPERS

1. Anthony Agnesina, Amanvir Sidana, James Yamaguchi, Christian Krutzik, John Carson, Jean Yang-Scharlotta, and Sung Kyu Lim, "A Novel 3D DRAM Memory Cube Architecture for Space Applications", *Design Automation Conference*, 2018.
2. Anthony Agnesina, James Yamaguchi, Christian Krutzik, John Carson, Jean Yang-Scharlotta, and Sung Kyu Lim, "Bringing 3D COTS DRAM Memory Cubes to Space", *IEEE Aerospace Conference*, 2019.
3. Yi-Chen Lu, Jeehyun Lee, Anthony Agnesina, Kambiz Samadi, and Sung Kyu Lim, "GAN-CTS : A Generative Adversarial Framework for Clock Tree Prediction and Optimization," *IEEE/ACM International Conference on Computer-Aided Design*, 2019. Nominated for Best Paper Award.
4. Anthony Agnesina, Etienne Lepercq, Jose Escobedo, and Sung Kyu Lim, "Reducing Compilation Effort in Commercial FPGA Emulation Systems Using Machine Learning," *IEEE/ACM International Conference on Computer-Aided Design*, 2019. Nominated for Best Paper Award.

TEACHING EXPERIENCE

- **Teaching Assistant, Georgia Institute of Technology**.
  - Physical Design Automation of VLSI Systems (Spring 2019).
- **Teaching Assistant, CentraleSupélec**.
  - Electronics Laboratory (2015).

WORK EXPERIENCE

R&D Technical Intern, Synopsys, May 2019 - Aug. 2019.

◇ Integration of ML prediction inside ZeBu emulator, with work on netlist analysis & partitioning

Hardware Engineering Intern, Airbus Defence and Space, May 2016 - Dec. 2016.

◇ Test & Characterization of Multi-Gigabit Transceivers

◇ RTL Implementation of Serial RapidIO protocol

◇ Multiprocessing on Xilinx Zynq Ultrascale+ MPSoC

LANGUAGES

Proficient in English, French. Limited proficiency of German and Russian.

SKILLS

- **Programming** : C, C++, Python, Tcl, Unix shell scripting, OCaml, Verilog, VHDL.
- **Hardware** : Lab/Test skills including soldering, logic analyzers, high-speed oscilloscopes, and FPGAs.
- **EDA Tools** : LTspice, Xilinx ISE & Vivado, Cadence Virtuoso & Innovus.

RELEVANT COURSEWORK

Physical Design Automation of VLSI Systems	Prof. Sung Kyu Lim
Computer-Aided VLSI System Design	Prof. Vincent Mooney
Quantum Computing Systems	Prof. Moinuddin Qureshi
Random Matrix Theory	Prof. Merouane Debbah
Machine Learning	Prof. Charles Isbell
Memory Device Technologies and Applications	Prof. Shimeng Yu
Advanced Programming Techniques in C++	Prof. George Riley
Network Algorithmics	Prof. Jun Xu

REFERENCES

FROM ACADEMIA

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