PhD Position in FPGA CAD Tool Development

Position:
The FPGA CAD Group at the University of Guelph, Ontario, Canada, invites applications for a Graduate Research Assistant (GRA) in the Doctor of Philosophy program for a period of three years in FPGA CAD. The amount of the GRA stipend will depend upon the value of other internal or external scholarships and assistantships that you may receive. The combined value of the GRA and other scholarships and assistantships will not be less than $8000 per semester. The GRA stipend will be reviewed every semester and renewal is subject to continued satisfactory performance. You can also apply for Graduate Teaching Assistantships (GTA) positions within your area of expertise. These are awarded through an open competition process.

FPGA CAD Group:
The FPGA CAD group is led by two faculty members at the University of Guelph who supervise post-doctoral, PhD and MSc students whose research is related directly to FPGA architectures, CAD tools, and applications. The group works closely with leading companies, such as NGCodec, AMD and Huawei, where reconfigurable computing is a critical technology. Today, this group is addressing challenges in hardware accelerators, electronic design automation, machine learning and deep learning.

Job Description:
The FPGA CAD Group is looking for a software engineer with FPGA CAD tool development experience. The ideal candidate will have hands on experience designing and developing FPGA CAD tools starting from defining data strucutres to implementing algorithms. The project involves developing a place-and-route tool chain to support multiple heterogeneous FPGA architectures, including Xilinx UltraScale(+) and Intel based FPGAs. The successful candidate will lead research, propose major innovations, develop appropriate CAD algroithms and perform the software design and development required to implement the algoirhtms, collaborate with other group members, publish results in top tier conferences and journals, and contribute to or lead proposals. **Interest and knowledge in applying and integrating machine learning and deep learning techniques within the CAD flow would be considered an asset.**

Qualifications:
- MSc in Electrical Engineering, Computer Engineering, or Computer Science with solid understanding of CAD algorithms for partitioning, packing, placement, and routing.
- Experience implementing at least one of the above CAD algorithms in software.
- Strong C/C++ development experience, including demonstrable contributions to large-scale C/C++ projects. Commercial or open-source development experience is a plus.
- Expert level use of Xilinx or Altera implementation tools. Detailed understanding of mapped and unmapped netlist formats, such as EDIF, XDL, and structural Verilog
- Strong scripting abilty with shell, awk, perl, tcl, etc
- Excellent communication and presentation skills (written and verbal) in English.
- Excellent publication record and analytical skills.

Contact Information:
Interested applicants are encouraged to contact Shawki Areibi (sareibi@uoguelph.ca) and Gary Grewal (ggrewal@uoguelph.ca) Please attach your most recent CV, transcripts, and publications.