Saber Gholami

Software Engineer

(438) 722-9130 | sabergholami72@gmail.com | sabergholami72 | sabergh.com
Google Scholar | ResearchGate

Professional Profile

I am an accomplished Software Engineer with a robust technical and theoretical foundation. My expertise in algorithms and data structures for Place and Route within FPGA CAD tools is the result of substantial experience in professional environments. Holding a Ph.D. in Computer Science, I have adeptly tackled a wide range of complex problems, consistently delivering optimized solutions or fast heuristics.

Work Experience

Huawei Technologies Canada Co. Ltd **Apr 2023 - Present:** *Software Engineer*

- Engaged in the development of FPGA CAD tools using C++ for Place and Route team.
- Conducted thorough research to identify cutting-edge EDA algorithms tailored to support custom architectures, and developed multiple algorithms focusing on core routing, parallel scheduling and filter generation, leading to a notable 12x acceleration in router flow through the implementation of parallel techniques.
- Designed the complete clock solution for the tool, achieving a significant 16x speed enhancement compared to the previous solution for placing and routing on the clock network.
- Collaborated closely with the Timing team to pioneer advancements in clock skew optimization and the resolution of hold violations, resulting in a noteworthy 5% increase in fmax.

Virtual Reality Lab, K.N.Toosi University, Iran **Sep. 2015 - Aug. 2016:** *Software Engineer*

- Developed a Java framework for optimizing the movement of virtual cars in curved highways and bridges using Bezier curve fitting methods.

Education

Ph.D in Computer Science **Sep. 2019 – Dec. 2022:** *Concordia University*

- Developed a novel Genetic Algorithm framework for fast message dissemination in networks with limited memory in Python.
- Designed the optimal algorithm for broadcasting in various communication networks.
- Developed a fast algorithm for community detection in social networks based on centrality measures.
- Suggested a memory-efficient model for communication in graphs.

M.Sc in Computer Engineering **Sep. 2017 – Sep. 2019:** *Amirkabir University*

- Developed a novel hybrid learning model based on learning automata with applications in the dropout phase of Neural Networks in Python.
- Developed a fast algorithm for influence maximization in social networks based on graph coloring in Python.
- Developed various ML and NLP algorithms for classifying Google Play applications in Python.

Technical Skills

- Programming Languages: C++, C, Java, Python
- Production Tools: Git, CMake, Agile
- Operating Systems: Windows, Linux
- ML and DL: Scikit-learn, NumPy, SciPy, Pandas, Spektral, NetworkX, Nltk
- Web technologies: HTML, CSS, Bootstrap, Javascript, jQuery, Django

Recent Publications

- A Note to Non-adaptive Broadcasting, 2024
- Optimal Broadcasting in Fully Connected Trees, 2023
- HLA: a novel hybrid model based on fixed structure and variable structure learning automata, 2023
- HUB-GA: A heuristic for universal lists broadcasting using genetic algorithm, 2023
- Broadcast graphs with nodes of limited memory, 2023
- Fully-adaptive model for broadcasting with universal lists, 2022
- A complete list available at my [Goole Scholar] page.

Teaching Experience

- @ **John Abbott College, Montreal, Canada:** Foundations of Web Development
- @ **Concordia University, Montreal, Canada:** Data Structure and Algorithms - Object-Oriented Programming - Intro to Theoretical Computer Science - Formal Methods for Software Engineering - Software Engineering - Software Design Methodologies
- @ **Amirkabir University of Technology, Tehran, Iran:** Algorithm design - Data structure
- @ **K.N.Toosi University of Technology, Tehran, Iran:** Algorithm design - Automata theory, languages, and computation - Logic circuit

References

My supervisor @ *Huawei Technologies Canada Co. Ltd.*

- Mark Bourgeault
- LinkedIn/mark-bourgeault
- mark.bourgeault@huawei.com

My Ph.D. supervisor @ *Concordia University*

- Hovhannes A. Harutyunyan
- Personal website
- haruty@cs.concordia.ca