Alexander Safatli

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Summary

Recent graduate of a Master of Computer Science thesis program at Dalhousie University. Software developer with a reputation for rigorous thinking and methodological consistency. Looking to start my career in the private sector.

I aspire to learn, design, build, and explore complex computer models. I promise to approach any tasks with an open mind and strong discipline, to be open to criticism and to consider new ideas, and to be someone you can trust to adapt and perform to new situations and technologies.

Experience

Dalhousie University — Halifax, Canada

Teaching Assistant — *2012 – 2015*

- Operating Systems – Winter 2015. Marked software assignments written in C.
- Principles of Programming Languages – Summer 2014. Marked software assignments written in Scheme and Prolog.
- Concepts in Computing, Bioinformatics – various terms 2012-2014. Marked written and programming assignments covering a breadth of topics in computer science and bioinformatics.
- Comm. Skills: Oral/Written – various terms 2012-2013. Marked, help teach oral presentations and common business document writing.

References. Assist. Prof. Michael McAllister, Prof. Philip T. Cox, Assoc. Prof. Christian Blouin, Instr. James Fleming.

Research Assistant & Software Developer, Blouin Lab — *2012 – 2014*

Took major part in writing Python libraries for geometric morphometric analysis of 2D and 3D biological structures, for molecular dynamics, for protein homology modelling, and for the parsing of essential file formats. These software libraries are used regularly by other graduate students in the laboratory for their projects. *Reference*. Assoc. Prof. Christian Blouin.

Research Assistant, White Lab — *Summer 2010*

Summer research assistant position in the Department of Chemistry for a group focused on physical chemistry of materials. Helped write a journal article for the Ashrae 2011 Annual Conference on Solar Panels and the use of Phase Change Materials (PCMs) to store energy. *Reference*. Prof. Mary Anne White.

Research Assistant, Wentzell Lab — *Summer 2009*

Summer research assistant position in the Department of Chemistry for a group focused on chemometrics and the analysis of chemical data. Wrote a suite of software in Matlab that helped in the finding of genetic motifs in DNA sequences and to evaluate statistical plots of findings. *Reference*. Prof. Peter Wentzell.

Please refer to my Linkedin profile for further details and any relevant recommendations.

Education

Dalhousie University — Halifax, Canada

Master of Computer Science — *2014 – 2015*

- Education in Adv. Data Structures, Algorithms, Heuristics, and Natural Language Processing.
- Written a thesis *Sampling Discrete Combinatorial Spaces in Phylogenetics* on combinatorial space visualization and analysis in bioinformatics.
- Published and currently maintain a Python software framework for combinatorial space analysis.

Supervised by Assoc. Prof. Christian Blouin. *Extracurricular*. Computer Science Graduate Society, Executive Secretary for later term of 2014.

Bachelor of Computer Science with Distinction • GPA 3.8 (Major 4.0) • Dean's List — *2008 – 2013*

- Thorough breadth of computer science fundamentals without specialization.
- Further focus on mathematics (geometry, cryptography, linear algebra) alongside chemistry.
- Completed individual and collaborative software projects in Java incl. a geo-location mobile game.
- Featured experience working with clients through a Community Outreach program.

Awards. Undergraduate Student Research Award from the Natural Sci. & Engineering Research Council (NSERC) for summer internships in 2009, 2012, and 2013. *Extracurricular*. Computer Science Society, Dalhousie University, Executive Secretary as of 2012-2013; Sodales Debating Society, Executive Secretary in 2010.

Publications

[1] R. Murray, L. Desgrosseilliers, J. Stewart, N. Osbourne, G. Marin, A. Safatli, D. Groulx, and M. A. White, "Design of a latent heat energy storage system coupled with a solar domestic hot water system," in *Proceedings of the World Renewable Energy Congress 2011*, Sweden, May 2011.

[2] A. Safatli, J. S. Hleap, K. Nguyen, and C. Blouin, "Automatic definition of homologous shape descriptors for geometric morphometric data," in *Proceedings of the Dalhousie Computer Science In-House Conference 2012 (DCSI2012)*, Halifax, NS, Canada, Sep. 2012.

[3] J. S. Hleap, A. Safatli, K. Nguyen, and C. Blouin, "Reference matters: an efficient and scalable algorithm for large multiple structure alignment," in *Proceedings of the International Conference on Bioinformatics and Computational Biology 2013 (BICoB 2013)*, Honolulu, USA, Jan. 2013.

[4] A. Safatli, "Sampling discrete combinatorial spaces in phylogenetics," Master's thesis, Dalhousie University, Apr. 2015.

[5] A. Safatli and C. Blouin, "Application of ant colony optimization for mapping the combinatorial phylogenetic search space," in *Proceedings of the International Conference on Bioinformatics Models, Methods and Algorithms 2015 (BIOINFORMATICS 2015)*, Lisbon, Portugal, Jan. 2015.

[6] ——, "Pylogeny: an open-source python framework for phylogenetic tree reconstruction and search space heuristics," *PeerJ Computer Science*, in press 2015.

Skills

Technical Knowledge Software design and implementation, with(in) a team. Technical/scientific writing and use of the LaTeX typesetting engine. Adv. experience with Python, Java, C, Objective-C, and Perl. Elementary to intermediate knowledge with C++, C# (.NET framework), Go, Scala, Lua, Prolog, Haskell, Scheme, Matlab, and R. Knowledge of database technologies: MySQL, SQLite, NoSQL. Knowledge of web technologies: HTML+CSS, XML, REST, JSON, JavaScript (jQuery, D3).

Methodologies Have worked with different tools of machine learning incl. support vector machine (SVM) and random forests. Have also done a large deal of information extraction, data classification, data visualization, and data mining using conventional and classical tools.

Natural Languages English *(mother tongue)*, Arabic *(limited working proficiency)*, and French *(elementary proficiency)*.

Interests

Non-exhaustive and in alphabetical order: Art, cryptography, gaming, guitar, music (collecting, recording), open source, philosophy, reading, typography.