

Martin Szyld

Mathematics, Data Science, and Software

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STATEMENT OF GOALS

I am looking for a full-time position in software development where my expertise in mathematics, data science, and coding can be applied to real-world problem solving using advanced techniques. I am seeking to join an organization that has a dynamic team culture, rewards productivity, and is looking to benefit from analytical expertise.

HIGHLIGHTED SKILLS AND TECHNOLOGIES



- Coding competitions with C++: Ranked top 500 worldwide in Google Kickstart last round (top 20 in Canada), ranked top 5% in Leetcode contests site.
- Data and AI: Completed 22 projects using Python packages Numpy, Pandas, SciPy, and TensorFlow. These are part of Harvard's CS50 Introduction to Artificial Intelligence course ([link to certification](#)) and FreeCodeCamp's Data Analysis and Scientific Computing certifications, ([link to certifications](#)).
- Designed and built my math research webpage using TypeScript, Angular, and Ionic components. Certified in Javascript ([link to certification](#)).
- Well-developed interpersonal skills; worked with several research teams over a 6+ year period.
- Able to work independently and to supervise others; was the professor in charge of university teaching teams and recently mentored two graduate students on research projects.
- Outstanding presentation skills delivering over 25 talks at scientific meetings with high-quality slide shows and animated presentations. Taught 30+ university courses with excellent students ratings.

WORK EXPERIENCE

AARMS Postdoctoral Fellow at Dalhousie University, Halifax, Canada 2020 – 2022

- Conducted research in mathematics, worked in collaboration and as a supervisor. Selected papers:
 - G. Cruttwell, M. Lambert, D. Pronk, and M. Szyld, "Double Fibrations", in Theory and Applications of Categories, vol. 38 (2022).
 - M. E. Descotte, E. J. Dubuc, and M. Szyld, "Model Bicategories and their Homotopy Bicategories", in Advances in Mathematics, vol. 404 (2022).
- Gave presentations at scientific meetings worldwide, many by invitation. Selected talks:
 - "An invitation to double categories", at University of Coimbra, Portugal (2022).
 - "Lifting PIE limits with strict projections", at International Category Theory Conference, Italy (2021).
 - "The Grothendieck construction for double categories" at University of Ottawa, Canada (2020). ([link to presentation slides](#)).
 - "Sigma limits in 2-categories and applications", at Dalhousie University, Canada (2020). ([link to animated presentation](#)).
- Co-supervised a student from the École Normale Supérieure, France and another student from Dalhousie University on research projects. Outcome: a joint paper and 966 lines of code in Lean programming language for formal verification in category theory ([link to code in Github](#)).

Assistant Professor at Dalhousie University, Halifax, Canada 2021 – 2022

- Designed and taught a Geometry course twice. Did a 100-page set of class notes ([link to notes](#)), received a 4.39/5 score in students' feedback and a 5/5 score in RateMyProfessors ([link to reviews](#)).

Postdoctoral and Doctoral Fellow at Universidad de Buenos Aires, Argentina 2010 – 2018

- Conducted research first under supervision, then in collaboration and independently. Gave conferences and a short course at international meetings. Selected papers:
 - M. Szyld, "A general limit lifting theorem for 2-dimensional monad theory", in Journal of Pure and Applied Algebra, vol. 222 (2018).
 - Descotte M.E., Dubuc E. J., Szyld M., "Sigma limits in 2-categories and flat pseudofunctors", in Advances in Mathematics, vol. 333 (2018).

For the list of my 10+ papers and 25+ talks see my math webpage: www.mathstat.dal.ca/~mszyld/

Lecturer and Teaching Assistant at Universidad de Buenos Aires, Argentina 2006 – 2018

- Taught 30+ university courses. Taught undergraduate courses such as Algebra, Calculus, Linear Algebra, and Numerical Analysis with classes of around 70 students. Designed and taught more advanced graduate math courses such as Topology, Functional Analysis, and Category Theory.
- Average rating from students: 4.37/5 since 2006, and 4.55/5 since 2015 ([link to results](#), in spanish).

EDUCATION

- Ph.D. in Mathematics, Universidad de Buenos Aires, Argentina. GPA: 4.0/4.0 2015
Certified in Canada as an Earned Doctorate ([link to certification](#)).
- Master's in Mathematics, Universidad de Buenos Aires, Argentina. GPA: 4.0/4.0 2009
- Technical High School Diploma in Informatics, ORT 1 School, Argentina. GPA: 3.52/4.0 2001

LANGUAGES

Fluent in English (IELTS 8.0/9.0) and French (TEF C1/C2), native proficiency in Spanish.

OTHER QUALIFICATIONS

- Certified Advanced performance in Algorithms & Data Structures, General Coding Logic, and C++; and Proficient performance in Python by TripleByte ([link to certificate](#)).
- Completed Google's foo bar challenge using Python and published explained solutions as Jupyter Notebooks ([link to solutions](#)).
- Certified C++ skill by LinkedIn ([link to profile](#)).
- Achieved 10/10 score on Problem Solving, Implementation, and Speed in Codesignal platform ([link](#)).
- Familiar with agile project management, scrums, sprints, and stand-up meetings, having used similar methodologies for research projects.
- Contestant, trainer, and organizer of different mathematics and coding competitions. Ranked top 10 in Argentina several times, and trained many students for these competitions during 5 years.

OTHER INTERESTS

- Board and card games, Dominion, Go.
- Guitar, piano, and swing dancing.
- Nature, camping, and hiking.
- Personal finances and tax optimization.

STATUS IN CANADA AND REFERENCES

- Permanent Resident since 2021.
- References available upon request.