Mher Safaryan | Curriculum Vitae

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Education

Academic Qualifications

Ph.D. in Mathematics   **Yerevan State University**
Department of Mathematics, Chair of Theory of Functions   *2015–2018*
Thesis: On estimates for maximal operators associated with tangential regions

M.Sc. in Mathematics   **Yerevan State University**
Department of Mathematics, Chair of Theory of Functions   *2013–2015*
Thesis: Some generalizations of theorems of Fatou and Littlewood

B.Sc. in Mathematics   **Yerevan State University**
Department of Mathematics and Mechanics   *2009–2013*
Thesis: Some properties of convergent and divergent convolution type operators

High school student   **Quantum, Yerevan**
Mathematics-Physics flow   *2007–2009*

Awards

Third Prize (2011, 2013), Honorable mention (2012)   **AUBG, Blagoevgrad**
International Mathematics Competition (IMC) for University Students   *2011-2013*

YSU bronze medal   **Yerevan State University**
YSU best student competition, Department of Mathematics   *2013*

Work Experience

Postdoctoral fellow   **KAUST, Saudi Arabia**
King Abdullah University of Science & Technology (KAUST)   *Oct 2019–present*
Optimization for Machine Learning, advisor: Prof. Peter Richtárik

Research Technician   **KAUST, Saudi Arabia**
King Abdullah University of Science & Technology (KAUST)
Computer, Electrical and Mathematical Sciences & Engineering (CEMSE) Division

Computer Algebra for Differential Equations   *Nov 2016–Oct 2019*
Automation of symbolic PDE analysis with Wolfram Mathematica, advisor: Prof. Diogo Gomes
- *Finding conservation and dissipation laws for a system of time-dependent evolution equations,*
- *Symbolic methods for overdetermined systems of linear PDEs with free parameters.*

[collaboration] Big Data Optimization in Machine Learning   *Jan 2019–Oct 2019*
Stochastic optimization methods, advisor: Prof. Peter Richtárik

Junior Researcher   **Yerevan, Armenia**
Institute of Mathematics of National Academy of Sciences   *Aug 2014–Dec 2017*
                                                                                  July 2018–June 2019

Real Analysis Department, advisor: Prof. Grigori Karagulyan
Harmonic Analysis: Real-variable Methods, Orthogonality, and Oscillatory Integrals
- *Convergence regions of integral operators of convolution type*
- *Differentiation of integrals in $\mathbb{R}^n$*

Search Engine Developer   **Yerevan, Armenia**
Teamable Software   *Apr 2014–Nov 2016*

Working extensively on data quality and all aspects of search engine in the product. Building intelligent, advanced and scalable search engine with Apache Solr.
- Processing, cleaning and regularizing data
- Extending company's data with third party sources of information
- Enhancing data collection procedures to include information relevant to search improvements
- Programming with python using its libraries for data analysis such as Scikit-learn, Natural Language Toolkit (NLTK), SciPy (IPython, NumPy, SymPy, Pandas, Matplotlib), etc
- Optimizing the indexing process and querying engine
- Creating customized search types, including synonym search and boolean search
- Incessantly improving search quality and performance based on the data analysis

Assistant Teacher of Olympiad Mathematics   **Yerevan, Armenia**
Quantum, Yerevan   *2011–2012*

Internships..

Internship Student   **Thuwal, Saudi Arabia**
King Abdullah University of Science & Technology (KAUST)   *2016, April–June*
Computer, Electrical and Mathematical Science and Engineering (CEMSE) Division

Automation of basic operations in analysis of PDEs using Wolfram Mathematica: variational derivative of a functional, integration by parts, generating polynomials with respect to certain symmetry groups and simplifying integral identities.

Visiting Student   **Bonn, Germany**
Hausdorff Research Institute for Mathematics (HIM)   *2016, Jan 11–15*
Winter School on *Advances in Mathematics of Signal Processing*

Web Programming Intern   **Yerevan, Armenia**
Instigate Training Center, Instigate Mobile CJSC   *Oct 2012–Jul 2013*

Publications

- Mher Safaryan, Peter Richtárik, *On Stochastic Sign Descent Methods*, arXiv preprint, arXiv:1905.12938, 2019.
- Mher Safaryan, *On Generalizations of Fatou's Theorem in L^p for Convolution Integrals with General Kernels*, arXiv preprint, arXiv:1905.12956, 2019.
- Mher Safaryan, *On an equivalency of rare differentiation bases of rectangles*, Journal of Contemporary Math. Anal., Vol. 53, No. 1, pp. 57-61, 2018.
- Grigori Karagulyan, Mher Safaryan, *On a theorem of Littlewood*, Hokkaido Math J., Volume 46,

Number 1 (2017), 87-106.

- Grigori Karagulyan, Davit Karagulyan, Mher Safaryan, *On an equivalency of differentiation basis of dyadic rectangles*, Colloquium Mathematicum 146 (2017), 295-307.
- Grigori Karagulyan, Mher Safaryan, *On generalizations of Fatou's theorem for the integrals with general kernels*, Journal of Geometric Analysis, 2014 Volume 25, Issue 3, pp 1459-1475.
- Yuri Movsisyan, Sergey Davidov, Mher Safaryan, *Construction of free g-dimonoids*, Algebra Discrete Math., 2014, Volume 18, Issue 1, 138–148.

Conferences

- *A package for symbolic PDE analysis*
  Mean Field Games and Applications, November 26-27, 2018, KAUST, Saudi Arabia.
  D. A. Gomes, M. H. Safaryan

- *A package for symbolic PDE analysis*
  European Wolfram Technology Conference, July 19-20, 2017, Amsterdam, The Netherlands.
  D. A. Gomes, M. H. Safaryan

- *On theorems of Fatou and Littlewood*
  International Conference, Harmonic Analysis and Approximations VI, September 12-18, 2015, Tsaghkadzor, Armenia.
  G. A. Karagulyan, M. H. Safaryan

- *On an equivalency of differentiation basis of dyadic rectangles*
  Armenian Mathematical Union Annual Session dedicated to the 100th anniversary of Professor Haik Badalyan, June 23-25, 2015, Yerevan, Armenia.
  G. A. Karagulyan, M. H. Safaryan

- *On theorems of Fatou and Littlewood*
  Armenian-Georgian Conference, September, 2014, Tsaxkadzor, Armenia.
  G. A. Karagulyan, M. H. Safaryan

- *On free A-bisemigroups*
  Computer Science and Information Technologies (CSIT), Proceedings of the Conference, September 23-27, Yerevan, 2013, Armenia, pp. 42-44.
  Y. M. Movsisyan, S. S. Davidov, M. H. Safaryan

- *Free A-bisemigroups*
  Mathematical Problems of Computer Science, XXXVIII, 2012, Yerevan, Armenia, pp. 23-25.
  Y. M. Movsisyan, S. S. Davidov, M. H. Safaryan