
Education

- 2021 - 2025 **Ph.D. in Applied Mathematics.** Illinois Institute of Technology (IIT).
2017 - 2021 **Master of Data Science.** IIT. Summa cum laude.
2017 - 2021 **B.S. in Applied Mathematics, Minor in Computer Science.** IIT. Summa cum laude.

Experiences

- Summer 2023 **Graduate Intern** at **Los Alamos National Laboratory.** I modeled the solution processes of PDEs with random coefficients using efficient and error aware Gaussian processes resulting in [3].
- Summer 2022 **Givens Associate** at **Argonne National Laboratory.** I researched methods to efficiently estimate failure probability using Monte Carlo with non-parametric importance sampling resulting in [2].
- Summer 2021 **Machine Learning Engineer** at **SigOpt, an Intel Company.** I developed novel meta-learning techniques for model-aware hyperparameter optimization resulting in [5].
- 2018 - Present **Lead Developer** of **QMCPy: A Quasi-Monte Carlo Python Library.** This package provides researchers and practitioners with high quality sequence generators, automatic variable transformations, adaptive stopping criteria algorithms, and diverse use cases. See [4, 6] or visit qmcpy.org.
- Fall 2021 - Present **Teaching assistant** at **IIT.** Includes leading review sessions for Ph.D. qualifying exams.
- Fall 2022 **Participant** in an elective course on **AI Driven Science on Supercomputers** through **Argonne National Laboratory.** Coursework at github.com/alegresor/ai-science-training-series.

Publications

- [1] Sou-Cheng T. Choi et al. "Challenges in Developing Great Quasi-Monte Carlo Software". In preparation for the 2022 Monte Carlo and Quasi-Monte Carlo Methods Conference Proceedings.
- [2] Aleksei G Sorokin and Vishwas Rao. "Adaptive Probability of Failure Estimation with Gaussian Processes". In preparation for the SIAM/ASA Journal of Uncertainty Quantification.
- [3] Aleksei G Sorokin et al. "Computationally Efficient and Error Aware Surrogate Construction for Numerical Solutions of Subsurface Flow Through Porous Media". In preparation for Advances in Water Resources Journal.
- [4] Aleksei G. Sorokin and Rathinavel Jagadeeswaran. "On Bounding and Approximating Functions of Multiple Expectations using Quasi-Monte Carlo". In preparation for the 2022 Monte Carlo and Quasi-Monte Carlo Methods Conference Proceedings.
- [5] Aleksei Sorokin et al. "SigOpt Mulch: An intelligent system for AutoML of gradient boosted trees". In: *Knowledge-Based Systems* (2023), p. 110604. ISSN: 0950-7051. DOI: <https://doi.org/10.1016/j.knsys.2023.110604>. URL: <https://www.sciencedirect.com/science/article/pii/S0950705123003544>.
- [6] Sou-Cheng T. Choi et al. "Quasi-Monte Carlo Software". In: *Monte Carlo and Quasi-Monte Carlo Methods*. Ed. by Alexander Keller. Cham: Springer International Publishing, 2022, pp. 23–47. ISBN: 978-3-030-98319-2.

Awards

- 2023 **Outstanding Mathematics Poster**, Los Alamos National Laboratory.
2021 **Best Manuscript**, IIT Undergraduate Research Journal.
2020 **Karl Menger Student Award for Exceptional Scholarship**, IIT.

References

- hickernell@iit.edu **Fred J. Hickernell, Ph.D.** Vice Provost for Research and Professor of Applied Mathematics, IIT.
nickh@lanl.gov **Nicolas W. Hengartner, Ph.D.** Senior Scientist, Los Alamos National Laboratory.
mccourt@sigopt.com **Michael J. McCourt, Ph.D.** Research Engineer, SigOpt, an Intel Company.
vhebbur@anl.gov **Vishwas Rao, Ph.D.** Assistant Computational Mathematician, Argonne National Laboratory.