Stanislav Y. Polishchuk

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Education

- **Ph.D. in Mathematics** — **Melbourne, Australia**
  Monash University — *2017 – 2022*
- **M.S. in Applied Mathematics and Computer Science** — **Novosibirsk, Russia**
  Novosibirsk State Technical University — *2015 – 2017*
- **B.S. in Applied Mathematics and Computer Science** — **Novosibirsk, Russia**
  Novosibirsk State Technical University — *2011 – 2015*

Research Experience

- **Research Officer** — **Melbourne, Australia**
  Monash University — *03.2023 – 04.2023*
  Research resulted in a paper being submitted to a peer-reviewed journal.
- **Research Officer** — **Melbourne, Australia**
  Monash University — *02.2022 – 05.2022*
  Investigated and developed the homotopy method and its application to the multilevel Monte Carlo methods which resulted in a new method being approximately 10 times faster than the alternative approaches for solving stochastic eigenvalue PDEs (C/C++).
- **Postgraduate Researcher** — **Melbourne, Australia**
  Monash University — *11.2017 – 11.2022*
  - Developed and implemented new computational methods based on multi-level and multi-index Monte Carlo methods integrated into the finite element methods such as SUPG and DG.
  - Developed a new multi-index Monte Carlo method based on incomplete polynomials for quantifying uncertainties in PDEs.
  - Investigated optimization-based transport approaches for inverse problems.
- **Graduate Research Assistant** — **Novosibirsk, Russia**
  Trofimuk Institute of Petroleum-Gas Geology and Geophysics of the SB RAS — *03.2016 – 06.2017*
  Developed and implemented a new multiscale discontinuous Galerkin method for 3D gas-hydrate problems with moving front (C/C++).
- **Graduate Research Assistant** — **Novosibirsk, Russia**
  Novosibirsk State Technical Univeristy — *09.2015 – 12.2015*
  Developed and implemented a multilevel solver for the 3D parabolic problems in heterogeneous media.

Publications

- **Journal of Scientific Computing** — **Submitted**
  T. Cui, H. De Sterck, A. D. Gilbert, S. Polishchuk, R. Scheichl — *2023*
  Multilevel Monte Carlo methods for stochastic convection-diffusion eigenvalue problems
- **PhD thesis** — **Published**
  Advanced multi-level and multi-index Monte Carlo methods for uncertainty quantification — *2022*

Awards and Scholarships

- **Monash University** — **Melbourne, Australia**
  Monash Graduate Scholarship — *2017 – 2022*
- **Novosibirsk State Technical University** — **Novosibirsk, Russia**
  Research grant — *2016 – 2017*

Skills

- **Programming languages:** C/C++, Python, FORTRAN, MATLAB, Asm x86, Julia, R.
- **Technical knowledge:** Numerical modelling, scientific computing, statistics, machine learning, AI, high-performance computing, finite element methods, Monte Carlo, Bayesian inference, Markov Chain Monte Carlo, inverse problems, unit testing.
- **Software skills:** Unix, Linux, Visual Studio, Qt Creator, Git, etc.