Stanford

Rahul Sarkar

Ph.D. Student in Computational and Mathematical Engineering, admitted Autumn 2017

Resume available Online

Bio

BIO

I am a Ph.D. student in the Institute for Computational and Mathematical Engineering (ICME) at Stanford Univesity. I am advised by Biondo Biondi & András Vasy. I expect to graduate in 2022. I obtained a Masters from ICME in Computational Mathematics in 2017. Before coming to Stanford, I had the privilege to work for Schlumberger in USA and Mexico. I finished my undergraduate study in IIT Kharagpur, India.

HONORS AND AWARDS

- Shell Fellowship, Stanford University (2015-2016)
- DAAD WISE Scholarship, DAAD (Deutscher Akademischer Austauschdienst) (2010)
- Institute Silver Medal, Indian Institute of Technology, Kharagpur (2011)

EDUCATION AND CERTIFICATIONS

- Ph.D., Stanford University , Computational and Mathematical Engineering
- MS, Stanford University , Computational and Mathematical Engineering (2017)
- Integrated BS and MS, Indian Institute of Technology, Kharagpur , Geophysics (Major), Physics (Minor) (2011)

PATENTS

- Rahul Sarkar, Marco Pistoia. "United States Efficient quadratic Ising Hamiltonian generation with qubit reduction", IBM Corporation., Nov 1, 2019

PERSONAL INTERESTS

Traveling, Physics, Finance.

LINKS

- Personal website: http://web.stanford.edu/~rsarkar/

Research & Scholarship

CURRENT RESEARCH AND SCHOLARLY INTERESTS

Inverse problems, machine learning for seismic imaging, quantum computing

PROJECTS

- Finding a cover for an ellipse with N rectangles - Stanford University (1/1/2016 - 3/31/2016)
- Dynamic Asset Allocation using Reinforcement Learning - Stanford University (9/20/2016 - 12/16/2016)
- Automated Aircraft Touchdown - Stanford University (10/1/2016 - 12/31/2016)

- Information Directed Reinforcement Learning - Stanford University (1/1/2017 - 3/30/2017)

LAB AFFILIATIONS

- Biondo Biondi, Stanford Exploration Project (9/15/2015)

Professional

WORK EXPERIENCE

- Quantum Computing Graduate Intern - IBM Thomas J. Watson Research Center (6/17/2019 - 9/13/2019)

- Quantum Algorithms Researcher - QC Ware Corp. (7/1/2018 - 9/23/2018)

- Application Developer - QC Ware (7/1/2017 - 9/25/2017)

- Geophysicist - Schlumberger (10/1/2013 - 8/31/2015)

- Incubator Program - Schlumberger (7/24/2011 - 9/30/2013)

Publications

PUBLICATIONS

- **The qudit Pauli group: non-commuting pairs, non-commuting sets, and structure theorems** *QUANTUM*
  Sarkar, R., Yoder, T. J.
  2024; 8

- **Density theorems with applications in quantum signal processing** *JOURNAL OF COMPUTATIONAL AND APPLIED MATHEMATICS*
  Sarkar, R., Yoder, T. J.
  2023; 430

- **Joint inversion of the reflectivity and the velocity model** *GEOPHYSICS*
  Cabrales-Vargas, A., Sarkar, R., Biondi, B. L., Clapp, R. G.
  2022; 87 (1): R1-R12

- **On sets of maximally commuting and anticommuting Pauli operators** *RESEARCH IN THE MATHEMATICAL SCIENCES*
  Sarkar, R., van den Berg, E.
  2021; 8 (1)

- **The index of invariance and its implications for a parameterized least squares problem** *arXiv*
  Cambier, L., Sarkar, R.
  2020

- **Texture Based Classification Of Seismic Image Patches Using Topological Data Analysis** *81st EAGE Conference and Exhibition 2019*
  Sarkar, R., Nelson, B. J.
  2019

- **Illumination compensation of shadow zones in extended least squares migrated images by solving the linear inverse problem in tomographic full waveform inversion** *89th SEG Annual International Meeting*
  Sarkar, R., Biondi, B.
  2019: 4297–4301

- **Seismic velocity estimation: a deep recurrent neural-network approach** *Geophysics*
  Fabien-Ouellet, G., Sarkar, R.
  2019; 85 (6): 1--35

- **On sets of commuting and anticommuting Paulis** *arXiv*
  Sarkar, R., Berg, E. v.
  2019

- **Snell tomography for net-to-gross estimation using quantum annealing** *SEG 88th Annual Meeting*

Sarkar, R., Levin, S.
2018: 5078–82