# JOAO BASSO

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## EDUCATION

**University of California, Berkeley, USA** *August 2022 - present*
*Ph.D. in Mathematics.*

**Tufts University, Medford, USA** *September 2016 - May 2020*
*Bachelor of Science, Summa Cum Laude, 3.91/4.0 GPA:* Mathematics, Physics and Computer Science triple-major.
*High Honors in Thesis:* "Coordinate-free Tensor Analysis".
*Activities:* Tufts Symphony Orchestra (concertmaster), Tufts Chamber Orchestra (associate concertmaster), Tufts Youth Philharmonic (mentor).

## WORK EXPERIENCE

**Google Research - Quantum AI, Venice, CA, USA** *August 2020 - August 2022*
*AI Resident*

I worked on the quantum algorithm team while mentored by Prof. Edward Farhi and Dr. Dave Bacon.

**Tufts University, Medford, MA, USA** *January 2017 - MAy 2020*
*Teaching Assistant*

- I was a TA for: **Complex Variables** (Spring '19), **Algorithms** (Summer '18), **Linear Algebra** (Fall '19), **Discrete Mathematics** (Fall '17, Spring '18, Fall '18), **Intro to Physics 1** (Fall '17, Fall '18), **Intro to Physics 2** (Spring '18, Spring '19), **General Physics 11** (Fall '17, Fall '19), **General Physics 12** (Fall '17, Spring '20), **Portuguese** (Spring '17, Fall '17, Spring '18).
- Tasks involved teaching recitations, holding office hours, grading and proctoring.

## PUBLICATIONS AND PRE-PRINTS

**Google Quantum AI and Collaborators (2022).** Suppressing quantum errors by scaling a surface code logical qubit, *arXiv:2207.06431*.

**Google Quantum AI and Collaborators (2022).** Formation of robust bound states of interacting photons, *arXiv:2206.05254*.

**Google Quantum AI and Collaborators (2022).** Noise-resilient Majorana Edge Modes on a Chain of Superconducting Qubits, *arXiv:2204.11372*.

**J. Basso, D. Gamarnik, S. Mei, L. Zhou (2022).** Performance and limitations of the QAOA at constant levels on large sparse hypergraphs and spin glass models, *FOCS 2022*.

**J. Basso, E. Farhi, K. Marwaha, B. Villalonga, L. Zhou (2021).** The Quantum Approximate Optimization Algorithm at High Depth for MaxCut on Large-Girth Regular Graphs and the Sherrington-Kirkpatrick Model, *TQC 2022, Outstanding paper award*.

**Google Quantum AI and Collaborators (2021).** Time-Crystalline Eigenstate Order on a Quantum Processor, *Nature*.

**Google Quantum AI and Collaborators (2021).** Information scrambling in quantum circuits, *Science*.

**Google Quantum AI and Collaborators (2021).** Realizing topologically ordered states on a quantum processor, *Science*.

**J. Basso, L. Tu (2020).** Basis-free analysis of singular tuples and eigenpairs of tensors, *arXiv:2012.07313*.

**M. Mosca, J. Basso, S. Verschoor (2020).** On speeding up factoring with quantum SAT solvers, *Nature Scientific Reports*.

**J. Basso, I. Yurchenko, M. Wiens, C. Staii (2019).** Neuron dynamics on directional surfaces, *Soft Matter*.

**I. Yurchenko, J. Basso, V. Syrotenko, C. Staii (2019).** Anomalous diffusion for neuronal growth on surfaces with controlled geometries, *PLoS One*.

**J. Basso, I. Yurchenko, M. Simon, D. Rizzo, C. Staii (2019).** Role of geometrical cues in neuronal growth, *Physical Review E*.

**J. Basso, M. Simon, C. Staii (2018).** Neuronal dynamics on patterned substrates measured by fluorescence microscopy, *MRS Communications*.

## HONORS AND AWARDS

**Outstanding Paper Prize**: 17th Conference on the Theory of Quantum Computation, Communication and Cryptography. (TQC 2022)

**2020 Senior Award:** Awarded to six to 12 graduating members of the senior class for academic achievement, participation in campus and community activities, and leadership. (Tufts University Alumni Association, April 2020).

**Benjamin G. Brown Scholarship:** Awarded to Tufts seniors who have shown promise in scientific research in fields other than chemistry. (Tufts University, April 2020)

**Tufts Career Center Internship Grant**: Received for a summer research internship at Boston University. (Summer 2018)

**Howard Sample Prize Scholarship in Physics**: Awarded for outstanding performance in General Physics I and II, calculus-based. (Tufts University, March 2018)

**Portuguese Conversation Group Leader**: Award of Excellence. (Tufts University, May 2017)

**Brazilian Physics Olympiad**: 1 Silver ('13), 1 Bronze ('12) and 1 Honorable Mention ('14) medals.

**Physics Olympiad of Sao Paulo**: 2 Bronze ('14, '10) medals.

**Brazilian Astronomy and Astronautics Olympiad**: 5 Gold ('08, '10, '12, '14, '15) and 3 Silver ('09, '11, '13) medals.

**FIRST LEGO League**: 1 Robot Design ('10) and 2 Core Values ('11, '13) trophies.

## LANGUAGES

English (fluent); German (intermediate); Portuguese (native).