JONAH SACHS

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GitHub: https://github.com/Jsachs14/Sachs-Github; Website: https://www.jonahmsachs.com/

EDUCATION

Washington University, St. Louis, MO   2021 – May 2025
GPA: 3.80
Double Major in Computer Science (McKelvey School of Engineering) and Physics (College of Arts & Sciences)
Double Minors in Quantum Engineering and Nanoscale Science and Engineering
- Coding Language Experience: Python, Arduino C, MATLAB, Java, C++, R, LaTex
- Computer Science Project Experience: Data Science and Visualization, Embedded Systems Software and Control Systems, Machine Learning for Quantum Computers and Physical Systems, Physical Modeling using C++, On and Off-board Software Production for FSAE Racing Vehicles
- Fabrication Instruments Utilized: AJA E-Beam Evaporator, Asher, Dicing Saw, Elionix Electron Beam Lithography (EBL), Heidelberg Laser Writer, Kloe Mask Aligner, Oxford ICP/RIE, Profilometer, Spin Coater, Scanning/Tunneling Electron Microscope

EXPERIENCE

QuEra Computing Inc., Boston, MA   Summer 2025
Software Engineering/Control Systems Intern

WashU Department of Chemical Engineering and Mathematics (Mentor: Grigoriy Yablonsky)   Spring 2024 – Present
Academic Research in Data Science and Chemical Engineering
- Working with statistical analysis and the visual modeling of chemical kinetic systems. Focusing on the conservatively perturbed equilibrium (CPE) chemical event with applications to joint kinetics.
- Published and in process of further publications with professors in both Chemical Engineering and Mathematics.
- Currently preparing materials for the MaCKiE conference (Chemical Engineering) in Izmir, Turkey.

WashU Department of Physics and Institute of Materials Science (Mentor: James Buckley)   Summer 2024 – Summer 2025
Fabrication of Josephian Parametrized Amplifiers and a Shot Noise Tunnel Junction
- Learned and optimized an established Dolan Bridge procedure for fabricating nanoscale Josephson Junctions (JJs).
- Created and optimized a procedure for microscale JJs, designing a shot noise-based noise source
- JJs prototyped and packaged for cryogenic environments to contribute to readout for the ADMX experiment @ WashU.

WashU Racing (FSAE), St. Louis, MO   Fall 2022 – Summer 2025
Lead of the Electronics and Data Acquisition team
- Managed a team of 12 engineers creating the electrical system for a Student Formula Vehicle.
- Ran the design and buildup of custom PCBs, communication systems, and over 50 attached sensors.
- Gained skills in firmware production, electrical debugging and production, and engineering design processes and management.
- Notable Projects: Live Telemetry, Error Detection and Digital Circuit Breaking, Improved Data Analysis, Control Systems.

WashU Department of Computer Science (Mentor: Ron Cytron)   Fall 2023 – Summer 2024
Academic Research and Independent Study in VQE and other algorithms for NISQ Applications
- Research surrounding Variational Quantum Eigensolvers (VQE) and other hybrid algorithms using Qiskit and D-Wave.
- Prepared and taught academic Tex-based materials for an introductory quantum computing course in the basics of quantum ML.

NDSU Department of Computer Science, Fargo, ND (Mentor: Danling Wang)   Summer 2023 – Spring 2024
Machine Learning Research Experience Undergraduate
- Worked in data preparation, analysis, and regression and classification models for an experimental diabetes sensor.
- Designed and ordered sensor prototype using *Altium Designer*. Built up the PCB project for a clinical study.

Washington University Learning Center/Undergraduate Student Services, St. Louis, MO   Fall 2021 – Summer 2025
Academic Support Positions
- Teacher's Assistant: Introduction to Intelligent Agents Using Science Fiction, Introduction to Quantum Computing, Chemical Kinetics and Catalysis
- Academic Mentor/Engineering Tutor: Introductory Physics, Introduction to Computer Science

WashU Club Golf   Fall 2021 – Summer 2025
President and Treasurer of Club; Member of Competitive Tournament Team

PUBLICATIONS

Josephson Junctions: Fabrication and Applications for the Axion Dark Matter eXperiment
- WashU Open Scholarship: https://openscholarship.wustl.edu/undergrad_etd/72/   May 2025

Conservatively perturbed equilibrium and perturbation: Linear case
- Chemical Engineering Journal (CEJ)- https://www.sciencedirect.com/science/article/pii/S1385894725021059?via%3Dihub   March 2025

Quantum Applications in the Automotive Industry
- Quantum Computing Report (QCR)- https://quantumcomputingreport.com/quantum-applications-in-the-automotive-industry/   January 2025

Between Research and Responsibility: The Invention of Dynamite
- Substantia: An International Journal of the History of Chemistry- https://riviste.fupress.net/index.php/subs/article/view/2536   September 2024

Applications of Quantum Computers to Optimization Problems
- Tech Writing Competition- https://www.jonahmsachs.com/Applications_of_Quantum_Computers_to_Optimization_Problems.pdf   May 2024