Brian Smiley

914-584-9539 briantsmiley42@gmail.com
binarysmile.com github.com/briansmiley

Employment & Experience

TypeSafe AI, San Francisco, CA March 2025-Present
Full Stack Software Engineer - Full Time

- Developed internal tooling and datasets for frontier AI research

Fractal Dev Accelerator, Summer 2024 Cohort June - August 2024

- 700 hours of intense practice in full-stack software development
- Collaborated on group projects and worked with NYC tech companies on real-world development projects/environments
- **Selected Projects:**
  - **WeMadeABudget:** wmab.app Budgeting app, clone of YouNeedABudget with full Auth and backend DB
  - **Tetris:** tetris.binarysmile.com Tetris implementation with TypeScript logic and decoupled rendering in React
  - **ArtGen Feed:** artgen.binarysmile.com Social feed for creating/sharing parametric fractals with auth and likes

Arch Laboratories, New York, NY April 2023-March 2025
Data Operations Analyst - Part Time

- Processed financial and document updates to clients' alternative investments on Arch's proprietary system

Schiminovich Astronomy & Instrumentation Laboratory, New York, NY December 2016-June 2022
Lab Assistant: PI, Professor David Schiminovich, PhD

- Designed parts and assemblies of structural and optical components for Circumgalactic Hydrogen-Alpha Spectrograph (CHaS) in Solidworks, including original hardware designs and finite element analysis simulations
- Manufactured parts in Columbia University machine shop/Maker Space
- Interfaced with vendors and machine shops to purchase components and manufacture custom parts
- Assembled CHaS instrument components and assisted in engineering runs at Kitt Peak National Observatory

Columbia University Astrophysics, New York, NY Summer 2012-Spring 2016
Lab Assistant: PI, Assistant Professor Bradley Johnson, PhD

- Designed parts and assemblies for cosmic microwave background (CMB) polarimetry experiments using Solidworks
- Operated cryostat hardware, including vacuum pumps and cryocoolers for testing experimental detectors
- Created schematic drawings for part manufacture, and interpreted others' drawings for reverse engineered digital mockups
- Designed, assembled, and operated experimental cryostat chamber for testing a superconducting magnetic bearing

National History Bee & Bowl (NHBB) June 2010-April 2016
Assistant Director

- Helped found and establish the NHBB organization during its inaugural year (2010-2011)
- Directed and staffed numerous high school quizbowl tournaments including yearly national finals, managing staff, students, and event logistics

Proficiencies

Software

Frontend: TypeScript, JavaScript, React, HTML, CSS, Tailwind, Vite, p5.js, NextJS, Remix
Backend: Node.js, Express, Prisma, Zod, Zodios, PostgreSQL, SQLite, Prisma, Supabase, Redis
Deployment: Netlify, Render, Vercel
CAD: Solidworks, Solidworks Simulation FEA, OpenSCAD

Machining General metalworking (e.g. mill, lathe, bandsaw, circular saw, drill press), laser cutter**,** 3D printing, waterjet

Education

Columbia University BA, Astrophysics May 2016
Coursera, Nand2Tetris, Parts 1 & 2 October 2021

- Built a virtual computer from the logic gate level to operating system levels, implementing a Java-like language + compiler

Brian T. Smiley
914-584-9539 • briantsmiley42@gmail.com

Publications

Melso, N., Schiminovich, D., Smiley, B., Ong, H., Cevallos Aleman, I., and Stelea, I., "*The Circumgalactic H-alpha Spectrograph: First Light Observations and Data Analysis of Early Science Targets Featuring NGC 4631*", vol. 53, no. 1, 2021.

Melso, N., Schiminovich, D., Smiley, B., Ong, H., Santiago, B., Sitaram, "*Design and commissioning of the Circumgalactic H-alpha Spectrograph*," Proc. SPIE 11447, Ground-based and Airborne Instrumentation for Astronomy VIII, 114470B (13 December 2020); https://doi.org/10.1117/12.2561674

Hamden, Erika T., et al. "*FIREBall-2: advancing TRL while doing proof-of-concept astrophysics on a suborbital platform.*" Micro-and Nanotechnology Sensors, Systems, and Applications XI. Vol. 10982. International Society for Optics and Photonics, 2019.

Johnson, B. R., Columbro, F., Araujo, D., Limon, M., Smiley, B., Jones, G., ... & Gupta, S. (2017). *"A large-diameter hollow-shaft cryogenic motor based on a superconducting magnetic bearing for millimeter-wave polarimetry."* Review of Scientific Instruments, 88(10), 105102.

B. R. Johnson, P. A. R. Ade, D. Araujo, K. J. Bradford, D. Chapman, P. K. Day, J. Didier, S. Doyle, H. K. Eriksen, D. Flanigan, C. Groppi, S. Hillbrand, G. Jones, M. Limon, P. Mauskopf, H. McCarrick, A. Miller, T. Mroczkowski, B. Reichborn-Kjennerud, B. Smiley, J. Sobrin, I. K. Wehus: "*The Detector System for the Stratospheric Kinetic Inductance Polarimeter (SKIP)*", 2013, Journal of Low Temperature Physics: Volume 176, Issue 5 (2014), Page 741-748; arXiv:1308.0235. DOI: 10.1007/s10909-013-1014-3.

D. C. Araujo, P. A. R. Ade, J. R. Bond, K. J. Bradford, D. Chapman, G. Che, P. K. Day, J. Didier, S. Doyle, H. K. Eriksen, D. Flanigan, C. E. Groppi, S. N. Hillbrand, B. R. Johnson, G. Jones, M. Limon, A. D. Miller, P. Mauskopf, H. McCarrick, T. Mroczkowski, B. Reichborn-Kjennerud, B. Smiley, J. Sobrin, I. K. Wehus: "*A LEKID-based CMB instrument design for large-scale observations in Greenland*", 2014, Proc. SPIE. 9153, Millimeter, Submillimeter, and Far-Infrared Detectors and Instrumentation for Astronomy VII, 91530W. (August 19, 2014); arXiv:1407.6249. DOI: 10.1117/12.2056828.

Sean Bryan, Kristi Bradford, George Che, Peter Day, Daniel Flanigan, Bradley R. Johnson, Glenn Jones, Bjorn Kjellstrand, Michele Limon, Philip Mauskopf, Heather McCarrick, Amber Miller, Brian Smiley: "*Design of Dual-Polarization Horn-Coupled Kinetic Inductance Detectors for Cosmic Microwave Background Polarimetry*", In 26th International Symposium on Space Teraherz Technology, ISSTT 2015;arXiv:1503.04684.