John Albert Faulhaber

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Education

University of Colorado at Boulder, *Boulder, CO*   August 2016 – May 2020

B.A. Astrophysics; Minor in Classical Studies, Cumulative GPA: 3.9/4.0

Honors/Awards: Summa Cum Laude *with distinction* – Awarded April 27th, 2020, Phi Beta Kappa (ΦBK) – Inducted December 7th, 2019, Ranked 4/63 in the Astrophysical and Planetary Sciences department upon graduation, Featured undergraduate classics minor recipient (here), Dean's List x7

Relevant Coursework: Stellar/Interstellar & Galactic/Extragalactic Astrophysics, Scientific Data Analysis & Computing, Quantum Mechanics, Vector Calculus, Electro & Magnetodynamics

Cornell University (Summer College), *Ithaca, NY*   June 2015 - August 2015

Emphasis: Astrophysics, General Engineering, Cumulative GPA: 3.35/4.0

Earned recognition for achieving "*the highest level of distinction in the design and construction of an engineering structure*" (ENGRG 1060)

Technical Skills

- Coding: Python 2.7, 3.9, Exposure to HTML + Google Apps Script
- Version control, GitHub, GitLab, Git Extensions
- GUI implementation with PyQt5
- Oscilloscopes, Optical Spectrum Analyzers, Optical Power Meters, Waveform Generators
- Image Analysis & Data reduction: SAOImage DS9, IRAF/PyRAF
- Scientific/Technical Writing, Peer-reviewed authorship & publication
- Model Fitting, Error Analysis, Data Analysis, Data Visualization
- Proficiency with a variety of video conferencing and collaborative whiteboard applications, Microsoft Office Suite

Research

Thesis: On the Nebular Motions of Sharpless 2-106 and its Evolutionary Phase (https://scholar.colorado.edu/concern/undergraduate_honors_theses/fx719n336)

- Wrote code in Python to extract relevant data, performed analysis, and created interactive data visualization models and tools that automated the ability to draw meaningful conclusions about the data

Primary Research Paper (Co-Author): Bally, John, et al. "Supersonic Expansion of the Bipolar Hii Region Sh2-106: A 3,500 Year-Old Explosion?", for the center for Astrophysics and Space Astronomy, published by AAS on 1/11/2022. (https://iopscience.iop.org/article/10.3847/1538-4357/ac30de)

- Contributed to and improved code, originally stemming from my thesis work, to perform detailed analysis and provide a practical nebular-motions calculation tool

Primary Research Paper (Acknowledgment): Bally, John, et al. "A Highly Collimated Jet from the Red Square Nebula, MWC 922", Published by MNRAS on 1/23/2019. (https://doi.org/10.1093/mnras/stz257)

- Performed data reduction and produced clean, analysis ready scientific images

Work Experience

MACOM Technology Solutions Holdings, Inc. – Software Engineer & Test Engineer Hybrid   July 2021 – Present

Formerly Linearizer Technology, Inc.

- Full-stack Python development and management of interactive software applications and data pipelines, allowing multiple engineers to automate critical stages of product production, and the creation of data packages for customers
- Self-directed initiation and development of independent projects designed to enhance company efficiency and workflow, such as Python-based remote-control applications for test equipment
- Ensures data integrity, quality, and security by scripting error and erroneous data detection algorithms and incorporating them into all personally managed or authored software projects, along with encryption
- Operation of temperature chambers and vibration test equipment and software
- Product component testing of optical fibers, variable optical attenuators, optical circuits, and PCBs, and authoring of test and product analysis result reports

University of Colorado, Boulder – Grader   Fall 2019

- Graded the complex physics and astronomy solutions and work of the 72 students enrolled in Astrophysics 1 – Stellar and Interstellar, and provided feedback to the professor on areas requiring further emphasis during future lectures

Amazon – Seasonal Employee, Fulfillment center   Summer 2019

- Assisted in managing and organizing incoming and outgoing inventory, and consistently surpassed the job quota, meriting additional work hours

The Princeton University Store – Sales Associate, Retail   Summers 2017, 2018, 2019

- Performed key store customer service duties and assisted with inventory management, helped train new employees, assisted in the fulfillment of web sales, and led the Sales Associates Team in acquiring new customer memberships

Entrepreneurship, Leadership, Public Talks

Texta Terra LLC – Founder and Owner (https://textaterra.com)   March 2022 - Present

- Works with clients to design and fabricate bespoke, handmade chainmail, maille adornments, and jewelry
- Full independent management of all product, sales, marketing, finances, inventory, and web presence

The Phi Beta Kappa Society – Executive Council Member, Delaware Valley · *Former Young Professional Advisor*   Dec. 2020 - Present

- Liaison between PBK Delaware Valley Association and Princeton University, oversees assn.'s programs and officers, finances, and public and national society relations
- Serves as a leader and moderator of in-person and virtual events, including larger regional events, and assist in determining offered programs and program content
- Designed social responsibility scholarship for local high school students championing academic excellence
- Led TedTalk-like events, and designed and delivered presentations to a public audience on two occasions - given talks concerned star formation and virtual particles (6/17/2021), and the decline of pyramid complexity in ancient Egypt (5/5/2022)