

TASKEEN JAFRI

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EXPERIENCE

Neutronics Simulation Intern

Arizona State University

-  May 2026 - Present
- **Optimized** a custom steady-state Monte Carlo neutron transport algorithm for consumer CPUs, implementing **parallelized execution** to accelerate statistical convergence.
- **Validated** absorption and scattering models against ENDF nuclear data libraries, isolating and correcting anomalies in the core transport logic.
- Used **DFT** with open-source software to find the density and stable lattice structures of multiple compounds through simulations.
- Learnt, relaxed and found the **Gibbs Free Energies** of 3+ unknown compounds and validated against known researched computations and theory.

Undergraduate Research Aide

Arizona State University

-  June 2025 - Present
- Implemented graph traversal algorithms (BFS, DFS) and TSP (Travelling Salesperson) heuristics to resolve spatial collisions and optimize backbone routing for DNA origami models.
- Designed an automated spatial-alignment system that infers lattice types and discrete helix structures from raw 3D coordinates, yet allowing high modularity through **customizable inputs**.
- Reduced overhead in lattice projection via **efficient sorting and collision-resolution** logic, maintaining real-time client-side performance for structural validation.

Mission Materials Archivist

Arizona State University

-  May 2024 - Aug 2025
- Involved with the Genesis mission, launched by NASA, to measure solar wind particles.
- Initiated and implemented a Python-based automation system for the archival process, significantly improving efficiency in handling archival data.
- Responsible for the collection, organization, and documentation of archival mission data, ensuring accurate analysis and secure storage at JSC (Johnson Space Center).

WEBSITES

Website **LinkedIn**
 <https://tjafri.com/>  <https://www.linkedin.com/in/tjafri/>

SKILLS

<u>Python</u>	<u>JavaScript</u>	<u>TypeScript</u>	<u>Java</u>	<u>CSS</u>
<u>NextJS</u>	<u>React</u>	<u>Nodejs</u>	<u>Flask</u>	<u>Google Cloud</u>
<u>Google Colab</u>	<u>Docker</u>	<u>Git</u>		
<u>BERT</u>	<u>CNN</u>	<u>PyTorch</u>	<u>TFLite</u>	<u>Tensorflow</u>
<u>ChatGPT API</u>	<u>HuggingFace API</u>	<u>Whisper API</u>		
<u>Nougat OCR API</u>	<u>Tesseract OCR</u>			
<u>Fusion360</u>	<u>Figam</u>	<u>SketchUp 3D</u>		

EDUCATION

Bachelor of Science (B.S.)

Arizona State University

-  Aug 2023 - May 2027 Tempe, AZ
- Bachelor of Science (B.S.), Applied Mathematics
- **Dean's List:** *Fall 2023, Spring 2024, Fall 2024, Spring 2025*
- 4.00 GPA

PERSONAL PROJECTS

Honeywell Hacks: Ignite

-  Jan 2025 - Jan 2025  Presentation
- Won 4th place (\$1000) at the Honeywell & ASU hackathon by redesigning a radiator for the HTF7000 turbofan engine.
- Developed core thermodynamic equations for the redesign as one of two R&D specialists.
- Utilized Python to analyze, optimize, and validate the final design data.

Ion Beam Analysis Lab (IBeAM)

-  March 2025 - May 2025
- Gained hands-on experience with ion beam accelerator hardware maintenance, including high-vacuum systems.
- Trained in lab protocols and advanced analysis techniques, including Rutherford Backscattering Spectrometry (RBS).
- Used data analysis software (xRUMP, SIMNRA) to analyze particle scattering data.

BeastWatch

-  Feb 2025 - Feb 2025  BeastWatch Github
- Designed and developed the core AI pipeline for a wildlife safety app in a 4-hour, high-pressure hackathon.
- Built a complete, functional demo, using a Faster R-CNN model to detect animals from a video feed.
- Integrated detection data with Gemini 2.0 to generate instant, real-time safety guidance.

LEADERSHIP EXPERIENCE

Head Event Coordinator

Astronomy Club

-  Nov 2024 - May 2026
- Provide leadership for a club of over 300 members, managing monthly stargazing events and ensuring optimal use of Celestron telescopes for celestial observations.
- Hosted events with the help of officers to enhance member engagement through activities like guided sky tours and astronomy-themed professor talks.
- Previously Vice President of the club.

Financial Manager

The AI Society

-  Sept 2023 - May 2024
- Created budget requests and managed funding for the student organization with over 250 students.
- Collaborated with a diverse team to organize events and workshops focused on Python models, including topics like Zero-Shot VQA and models utilizing Whisper AI STT & Google TTS.