

Atharvan Srivastava

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ABOUT ME

I am an undergraduate junior studying Mathematics and Computer Science, driven by a passion to apply my knowledge and understanding for advancements in medical research. I am particularly interested in the area of Medical Imaging where I wish to explore novel technologies, reconstruction methods and processes that reveal detailed insights, unravelling what is inside a human body. I aim to pursue higher studies in Medical Physics after completing my undergraduate.

EDUCATION AND TRAINING

Bachelor of Science in Mathematics and Computer Sciences. Certificate in Integrated Studies in Science, Engineering, and Society (ISSuES)

University of Wisconsin-Madison [09/2022 – 05/2026]

City: Madison | Country: United States

All India Senior School Certificate Examination (AISSCE)

Maharshi Patanjali Vidya Mandir, Prayagraj [04/2017 – 07/2021]

City: Prayagraj | Country: India

WORK EXPERIENCE

Undergraduate Research

Department of Medical Physics, UW Madison [05/2024 – Current]

City: Madison | Country: United States

- Assist with research regarding pharmacokinetic modelling in PET imaging to study the uptake and behavior of an irreversible FDG tracer, including its binding at the target region.
- Implemented Simplified Tissue Reference Model (SRTM) by calculating Time Activity Curves (TACs) from the blood vessel area and tumor region by extracting it from the dynamic PET image, and using it as an input function.
- Additionally, explored the fitting of one and two tissue compartment models to determine which model performs better under certain conditions.
- Calculated parametric images for different rate constants and Patlak plots to estimate the net influx rate, distribution volume for the tracer, and perform additional analysis.
- Use the open-source TPCCLIB software (by Turku PET center), COMKAT, ITK-SNAP for image visualization and MATLAB for necessary data analysis and image generations.

Staff Writer

Journal of Undergraduate Science and Technology (JUST), UW Madison [09/2024 – Current]

City: Madison | Country: United States | Website: <https://justjournal.club/>

- Staff writer at JUST, which is an interdisciplinary journal for the publication and dissemination of undergraduate research conducted at UW Madison.
- Write one to two editorials for the journal per semester focusing on any STEM area that breaks down recent scientific advancements or events for non-technical audiences.
- For the Fall 2024 journal, I wrote an article on the theme of mapping Earth's sustainable future through the lens of Paleontology. It focused on the Pleistocene geological epoch, the rise and fall of its ecosystem, implications and lessons we can learn from it.

Student worker at Der Rathskeller

Der Rathskeller, Memorial Union, UW Madison [04/2024 – 07/2024]

City: Madison | Country: United States

- Worked 10-15 hours per week at the university restaurant during the summer, gaining hands-on experience in food preparation, drink service, and general maintenance.
- Took on multiple roles, including cashiering, meal preparation in the kitchen, operating the grill, and maintaining cleanliness, demonstrating flexibility and teamwork in a fast-paced environment.

Peer Mentor

Bradley Learning Community (BLC), UW Madison [09/2023 – 05/2024]

City: Madison | Country: United States

- Worked as a Peer Mentor at BLC which is aimed to help freshman students for a better transition to college.
- Ran a one-credit weekly Roundtable class with a UW Faculty and manage students in the course by organizing engaging activities in the class.
- Planned and hosted two to three events (fun games, informative or talk sessions, or festivals) in Bradley Residence Hall each month, allowing students to connect with other residents and become a part of the community.

Language Partner

South Asian Flagship Languages Initiative (SAFLI) of UW Madison [19/06/2023 – 12/08/2023]

City: Madison | Country: United States

- Helped students learn Hindi in the University's Language Program in summer.
- Held fifty minute one-to-one sessions with each student twice a week to converse with them in Hindi and discuss class material.

Shadower

United School of Medical Sciences [01/09/2020 – 20/09/2020]

City: Prayagraj | Country: India

- Shadowed the Radiologist to observe the treatment/diagnosis of patients and to understand the working of software and computer reformation in Ultrasound and CT scans.
- Learned how a CT scanner by emitting a series of Ionizing Radiation, helps the computer to build a 3-D cross-sectional picture of the human body.

PROJECTS

[04/2024 – 05/2024]

Human Ear model

- Created a 3D model of the human ear in Three.js and showed the working of each part of the ear (outer, middle and inner ear).
- Included the animations for the propagation of sound waves, animations for the ear drum, and the movement of the three bones malleus, incus, and stapes.
- Added sliders to control time, air pressure and the intensity of sound waves hitting the ear, with a showing of proper consequences for each action. Also included the option to block/unblock the Eustachian and to change camera perspective.
- This project was inspired by the Computer Graphics class (CS 559) and class focused on ear anatomy, hearing mechanisms and disorders (CS&D 202)

Link: <https://github.com/ats-atharvan/Human-Ear-model>

[01/2021 – 03/2021]

Hospital Management System

- Created a menu-driven computer program to apply programming knowledge to a real-world situation/ problem.
- It is useful for the Hospital employees as it emphasizes on creation of new customer accounts and managing the existing ones.
- Programmed various steps from login/register to sign out for accounts with each step branching out to different operations.
- It allows users to add, remove, fetch and edit information stored in the hospital database for administration and management.
- Languages used: Python and MySQL.

Link: <https://github.com/ats-atharvan/Hospital-Management-System>

HONOURS AND AWARDS

[20/03/2021] The Association of Mathematics Teachers of India (AMTI)

National Mathematics Talent Contest (NMTC)

- Cleared stage 1 of NMTC, organised by The Association of Mathematics Teachers of India (AMTI).
- Among 129 students from all over India who were selected for the final stage from class 11 and 12.

[10/2021] Indian Institutes of Science Education and Research (IISER)

IISER Aptitude Test

- Ranked 4386 in the All-India Exam out of 100000 estimated candidates.

[05/2023] UW–Madison

Undergraduate Scholarship for Summer Study & Housing Boost

Received a scholarship of \$1000 to attend UW- Madison Summer Term in 2023. Also received the Summer Housing Boost scholarship in the same year which provides free housing for certain students during summer term.

[08/2020] FOSSEE project, IIT Bombay and MHRD, Govt. of India

Course on Basic Programming using Python

[08/2020] Coursera, University of Michigan

Python Data Structures

Link: <https://www.coursera.org/account/accomplishments/verify/2SS8N6866JWW>

[08/2020] Coursera, Google Cloud

Industrial IoT on Google Cloud Platform

Link: <https://www.coursera.org/account/accomplishments/verify/NZ8R3DMVTEC2>

VOLUNTEERING

[08/2020] Uttrakhand, India

Swami Vivekanand Health Mission Society (SVHM)

- Interacted with villagers, tribal population and taught them about hygiene and healthy living during Covid pandemic.
- Helped the paramedical staff in the health camps by distributing medicines and directing the patients to pathology, operation theatres and to the out-patient's bloc.
- Swami Vivekananda Health Mission Society, Uttarakhand runs eight charitable hospitals in inhospitable terrains in the Himalayas and provides free health services to the pilgrims going to the four holy shrines.

Link: <https://svhmuk.in/>

[05/2020 – 05/2020] Prayagraj, India

Kamala Nehru Memorial Cancer Hospital (KNMH)

- Volunteered to shadow the oncologist, counselled the patients and also tried to understand their grievances and problems.
- Helped the patients who were mostly semi-literate by making user-friendly maps and flyers for their education.
- Kamala Nehru Memorial Hospital is the government designated Regional Cancer Hospital of North India catering to a population of 50 million.

Link: <https://knmhospital.org/>

[04/2019 – 04/2021] Prayagraj, India

Patanjali Sarv Shiksha Prarambhik Vidyalaya (PSSPV), MPVM

- Volunteered to teach the kids in my high school over the weekend.
- PSSPV is an initiative of the school to teach the children of underprivileged and economically deprived class up to year 5 in the evening, after school hours.

HOBBIES AND INTERESTS

Participation in College Clubs:

- UW Badminton Club (played in annual tournaments like Fall Madison Open and Steve Radar Memorial Open)
- UW Math Club
- Journal of Undergraduate Science and Technology (JUST)
- AI in medicine
- Biomedical Engineering Society

Music and Nature

- I love listening to Korean rock ballads from late 90s and early 2000s and I also have a deep curiosity for listening to Japanese music containing profound and thought provoking lyrics.
- In my free time, I relish a slower pace of life, appreciating nature, perhaps reading a book in the grass and enjoying nice songs from artists like Yorushika and Aimer.
- I am also fond of writing. I try to find time beyond work and leisure to reflect and express my thoughts, whether it's journaling about my day, exploring new ideas, or simply capturing moments of introspection.

DIGITAL SKILLS

C / C# / C++

Python/MATLAB

Medical Imaging / programming: Python, MATLAB and SQL / Python (numpy, pandas, xarray, rasterio, zarr, xcube, geopandas, fastapi, scipy, scikit-learn) / Frameworks & Libraries: OpenCV, Sci-kit learn, NumPy, Pandas, SciPy, Matplotlib. / Data analytics solutions, Xarray Dask, Numpy, Pandas, Docker container, Jupyter Notebook

Javascript and graphics

Basic knowledge of 3D Graphics on Computers with OpenGL or Three.js / Beginner JavaScript for WebDevelopment / Document Object Model (DOM) / Conhecimento de Linguagens de programacao HTML, CSS, Python

Java

Java (JUnit) / Version Control System (Git) / Java, JavaFX

LANGUAGE SKILLS

Mother tongue(s): Hindi | English