Ahitagni Das

+1 682 403-(5658) | ahitagnied@rice.edu | ahitagni.rice.edu

Education

Rice University — Houston, TX

B.S. Electrical and Computer Engineering, B.A. Computer Science, GPA 3.96/4.0 — 2027

Relevant Coursework: Differential Equations, Computational Thinking, Discrete Mathematics, Multivariable Calculus, Fundamentals of Computer Engineering, Signal Processing, Linear Algebra, Semiconductor Physics, Physical Electronics, Nanoengineering

Activities: Trustees Scholar, Honor Roll, ECLIPSE Competitive Rocketry, Club Competitive Sailing, IEEE, ML@Rice

Interests: Deep Learning Theory, Generative Modeling, Synthetic Data Training, Neural Representations, Quantitative Research

Experience

RiceU, Data Signal Processing Group — Houston, TX
Undergraduate Research — Aug 2024 - Present

- Spline theory of Deep Learning to understand, visualize, characterize and improve Generative Models, advised by Dr. R. Baraniuk
- Shiny surfaces as Radiance Field Cameras using Implicit Neural Representations, advised by Dr. A. Veeraraghavan
- PyTorch, TensorFlow, XML, Mitsuba Renderer, OpenCV, CUDA, Conda, Matplotlib

RiceU, ECLIPSE — Houston, TX
Lead, Payload Team — May 2024 - Present

- Leading 20+ engineers to build the electronics and software of Rice's payload for the 2025 SpacePort America Cup
- Engineering a deployable $10 \times 10 \times 30$ cm (3U) Hyperspectral Imaging (HSI) Camera for monitoring agricultural cover in Houston
- MATLAB, SolidWorks, OpenCV, Python, C++, Arduino, Raspberry Pi, IR Spectrometers, RGB Cameras, KiCad

RiceU, Oshman Engineering Design Kitchen (OEDK) — Houston, TX
Design Mentor — Aug 2024 - Present

- Mentoring 2 engineering teams to work with real-world clients and budgets to engineer a solution within one semester.
- Project 1: engineering a non-invasive suction-measuring device to quantify the ability of a baby to create suction when feeding for assistance in pediatric diagnosis, UT Health
- Project 2: designing a on body contraption to check posture while engaged in sports for people with recovering from leg injuries

MIT Media Lab, Nano Cybernetic Biotrek (Sarkar Lab) — Boston, MA
Visiting Research Scientist — May - Aug 2024

- Research in sub-cellular CMOS compatible injectable bioelectronics for applications in colloidal robotics and neuroscience
- ML based prediction of onset of action potentials in Patch Clamp experiments
- Clean room deposition, etching, and other fabrication techniques, SEM, AFM, TEM, XRD, ML, Fourier Analysis, Comsol Multiphysics, PyTorch, TensorFlow, Matplotlib, MATLAB

RiceU, Ajayan Group — Houston, TX
Undergraduate Research — Aug 2023 - Aug 2024

- Hexagonal-Boron Nitride based Sodium and Lithium Ion Batteries (Submitted to ACS Nano)
- Review on efficient Sodium Ion Batteries in Electric Vehicles (Accepted to Springer, The Journal of Mat. Science)
- Efficient Lithium Ion Batteries using Industrial Waste Derirved Carbon (ongoing, to be published in ChemComm by invitation)
- Battery fabrication, High temperature testing, AFM, SEM, TEM, XRD, Electrochemical Analysis

Indian Institute of Technology (NanoFluidics Lab) — Guwahati, India
Visiting Research — Jun - Aug 2022

- Conducted an independent research on finding a novel method of converting plastic waste to Boron and Nitrogen Doped Graphene to generate electricity using blue energy devices
- Won a First Special Award by Mawhiba at the International Science and Engineering Fair 2023 in Dallas, consisting of a USD 60K+ Full Scholarship to the King Fahd University
- AFM, SEM, FT-IR, XRD, NanoFab, Electrochemical Analysis

Arda, Harvard Innovation Labs — Remote
Visiting Research — Sept 2022 - Jun 2023

- Orchestrated a partnership with the UN Environment Assembly to introduce Arda's cold chain drone deliveries in Nigeria; lead Arda's expansion in Nigeria
- Formed a report on the African Pharmaceutical Logistics Market (30+ companies) to support business relations and development

Awards

Excellence in Undergraduate Research, Dept. of Material Science and NanoEngineering, Rice University — 2024
International Science and Engineering Fair, Dallas, TX, First Special Award — 2023
International Science and Engineering Fair, Atlanta, GA, Finalist in Physics — 2022
CERN Beamline, Top 24 teams, Scintillator Afterglow Effect due to Nuclear Transmutation (SAENTs) — 2022
UPenn Summer Math Academy Fellow — 2022
Spirit of Ramanujan Fellowship, John Templeton Foundation — 2022
International Young Physicists Tournament, Indian National Team — 2021
Indian National Science and Engineering Fair, Gold Award and Honorable mention — 2021

Skills

Languages: Python, C++, PyTorch, TensorFlow, MATLAB, XML, Matplotlib, NumPy, Pandas, LaTeX
Laboratory: Cleanroom Fabrication, Sputter Chamberload, EBeam Deposition, Reactive-Ion Etching, Lift-off, Lithography, XRD, AFM, TEM, SEM, FT-IR, Electrochemical Analysis, Battery Fabrication and Testing, RTA and Programmable Anneal Tubes