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Advait Pavuluri

Education

Rensselaer Polytechnic Institute Troy, NY
Dean's Honor List junior in Computer Science 2023 - 2027

- **Coursework:** Data Structures, Discrete Math, Comp. Org., Algorithms, Principles of Software, Linear Algebra and Stochastics for M.L., Reinforcement Learning, Data Science, M.L. from Data, Operating Systems Design
- **Focus Track:** AI, Machine Learning & Data
- **Extracurriculars:** Physics mentor for freshmen, CS I & Data Structures TA, RCOS
- TJ Watson Memorial Scholarship award
- Renesselaer Leadership Award
- Renesselaer Recognition Award

New Rochelle High School New Rochelle, NY
High Honor Roll student 2019 - 2023

- Vice President and Treasurer for Robotics Club
- Co-vice President for Computer Science Honor Society
- Presenter in Science Honor Society
- Ignite Mentor for freshmen
- National Honor Society member

Internships

IBM T.J. Watson Research | Yorktown Heights, NY 2025.05 - 2025.08

- Integrated IBM's open-source Data Prep Kit (DPK) into proprietary AI model development pipelines, streamlining data curation and cleansing for large language model training and fine-tuning, and accelerating internal adoption across IBM research teams.
- Architected a scalable solution using KubeRay to parallelize Data Prep Kit (DPK) transformations, dramatically accelerating data processing by distributing workloads across multiple CPUs within OpenShift clusters.
- Conducting an empirical study on LLM-assisted and agentic Java framework modernization and migration, leveraging both static and dynamic analysis tools. Co-developing an open-source benchmark and co-authoring a research paper to establish baseline effectiveness of current tools and methodologies for migrating Java EE features and full applications across frameworks.

Albert Einstein College of Medicine | Bronx, NY 2022.06 - 2022.07

- Research and analysis using MATLAB to study the correlation between dietary intake and progression of human brain disorders (e.g. Alzheimer's disease). Analyzed the production of butyrate and chenodeoxycholic acid via flux balance analysis and namespace searching.
- Mentored by Dr. Roger Chang in the Einstein-Montefiore H.S. Research Program.

Brookhaven National Laboratory | Upton, NY 2022.06 - 2022.08

- Visualization and curve plotting library in Geant4 to study the effects of radiocative decay for a simulated neutron detector.
- Mentored by Dr. Andrea Mattera @ Nuclear Science & Tech. Dept.

Harvard University Division of Medical Sciences | Cambridge, MA 2021.06 - 2022.06

- "tiavda" - Software to analyze trajectories and fate of single cell to understand its organismal development through AI prediction models.
- Under the guidance of Dr. Luca Pinello and Dr. Michael Vinyard.

Projects

J.E.P.A. for Self-Driving Cars 2025.08 - Present

Prof. Uzma Mushtaque @ RPI, Department of Computer Science

Computational vision endeavor using V-JEPA 2 to analyze nuScenes clips of driving footage to find the most interesting and variable clips, with the goal being to add these clips to the data pipeline for training and improving self-driving vehicles. Research paper in progress.

Mai (Minecraft AI) 2024.05 - Present

Research Project

A fully autonomous agent in Minecraft, with capability to have critical thinking skills and the ability to interact with other autonmous Minecraft agents. Using locally hosted IBM Granite and LLaMA 3.1 to make the project cost-effective.

K-Factor: Potassium Tracking iOS app 2021.01 - 2023.01

Research Project

Designed, developed and launched an iOS app for tracking daily Potassium and Sodium intake in food, to help patients with hypertension and chronic kidney disease using USDA's API. Research guidance from Dr. Richard Saitta, Chief of Nephrology, Montefiore Hospital. Winner of prestigious Congressional App Challenge 2022, used by patients in multiple nephrology practices.

CKD Educational Infocenter: KidneysMadeEasy.com 2020.08 - 2021.07

Research Project

Developed an intuitive website to assist patients with Chronic Kidney Disease, including videos, fun quizzes and educational material relating to kidney friendly nutrition and lifestyle. This site is used to this day by patients struggling with CKD, in nephrology private practices at New Rochelle.

PEaRL 2018.08 - 2019.05

Team Research Project

Analyzed and built a prototype for reduction of radiation exposure in a Martian habitat by using a novel combination of **P**oly**E**thylene **A**nd **R**ego**L**ith, using NASA's online radiation simulation tool, OLTARIS. Patent pending.

SO-Cu 1.0 2017.08 - 2018.05

Team Research Project

Built a cost-effective device to eliminate Escherichia coli from contaminated water, using a combination of solar disinfection (**SO**DIS) and copper (**Cu**), tested it in a Ossining water treatment plant, studied and reported the effectiveness. Winner of best project award in 2018 FLL Internationals at Razorback, AR.

Awards and Honors

- **HackRPI X (Hackathon)**, Most Creative Use of GitHub Award 2023.11
- **New Rochelle Fund for Educational Excellence**, Technology Award 2023.05
- **Congressional App Challenge**, NY District 16 Winner 2022.12
- **Sewa International**, President's Gold Volunteer Community Service Award 2021.08
- **FIRST LEGO League**, Robotics Regional Championship Award 2020.05
- **FIRST LEGO League**, Best Robot Design Award 2019.05
- **FIRST LEGO League Internationals**, Best Science Research Award 2018.05

Skills

Languages: English, Telugu

Programming: `Python`, `C`, `C++`, `Java`, `R`, `Quantum Qiskit`, `Kubernetes`, `LaTeX`

AI: `OpenAI GPT API, Meta LLaMA, IBM Granite Code Models, BERT, scikit-learn, TensorFlow`

Applications: IntelliJ IDEA, PyCharm, CLion, VS Code, Adobe Photoshop, Adobe Premiere Pro

Hobbies: Video Editing, Graphic Design, Gaming, Touch Typing (Top 1% Worldwide), Coding, Weightlifting