John Patrick Capocyan

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Experience

iAnswer, Software Developer Intern - Katy, TX (Remote) May 2024 – Aug 2024

- **App Development**: Co-developed iAnswer, an AI app that streamlines the diagnostic process for physicians. Designed and optimized user interface using Swift, Node.JS, and TestFlight software.
- **Retrieval Augmented Generation**: Fed over 1000 patient medical records spanning 18 different specialties, utilizing Python and OpenAI software to fine tune responses on ChatGPT's API.

Projects

CellNet - Medical Database for Ethical Parameters Jun 2024 - Present

- Manually curated a large dataset currently containing over 120,000 tissue cell images for different organs. Many weights were trained and saved for transfer learning in future research. One notable use of this project was for deep learning PhD research in IIT Delhi.

Lung Cancer Detection using Convolutional Neural Networks Aug 2024 - Jan 2024

- Developed an optimized DenseNet201 to diagnose 3 lung cancer types (Mesothelioma, Squamous Cell Carcinoma, Lung Adenocarcinoma) across over 30,000 patient pathologic images. Achieved a 94.07% accuracy on the dataset and a 99.81% accuracy on the LC25000 dataset.

Impurity-analysis U-Net Model for Crystalline Molecules Oct 2023

- Developed an optimized U-Net model to successfully analyze impurities within gray scale images of Glutamine Acid and Wollastonite crystalline molecules. Achieved a dice score of 0.84 averaged across both datasets.

Publications

Enhancement Framework for Vision Transformers in Data Limited Cancer Detection: IEEE MIT Undergraduate Research Technology Conference (URTC), 2024

- Author(s): J.P. Capocyan

Implementation of Convolutional Neural Networks for Classifying Lung Cancer Types from Histopathological Images: IEEE Integrated STEM Education Conference (ISEC), 2024

- Author(s): J.P. Capocyan

Education

William P. Clements High School - Sugar Land, TX Aug 2021 – May 2025

- **GPA:** 3.92/4.0, **Rank:** 49/655
- **Relevant Coursework:** Multivariable Calculus, AP Calculus BC, Computer Science 4: Independent Study, Computer Science 3, AP Computer Science A

Honors And Awards

Associate Membership, Sigma Xi Scientific Research Honor Society: Inducted as an associate member due to the significance of my contributions to the Mathematics/CS field through my previous research and publications.

4th Place, 2024 Texas TSA State Webmaster Competition: Awarded 4th prize for submitting a green energy-advocacy website in Texas TSA's 2024 Webmaster competition reaching over 24 state entries.

Skills

Programming Languages: Python, Java, SQL, NodeJS, HTML/CSS/JavaScript, Swift

Programming Frameworks: PyTorch, Tensorflow, OpenCV, Pandas, NumPy, Matplotlib, Seaborn

Technologies: Deep Learning, Computer Vision, Visual Studio Code, Jupyter Notebook, Git, AWS