AVANI MUCHHALA

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Biomedical engineering graduate with a strong background in machine learning, product development, medical imaging analysis, and web development, seeking to expand technical expertise through a Master's in Computer Science program. Eager to develop software and artificial intelligence tools to improve healthcare diagnostics and patient outcomes.

EDUCATION

Case Western Reserve University | Cleveland, OH   May 2022
- B.S.E. in Biomedical Engineering / Computer Science Minor
- GPA: 3.81/4.00
- Coursework: Data Structures, Algorithms, Operating Systems & Concurrent Programming, Logic Design & Computer Organization, Discrete Mathematics, Linear Algebra, Differential Equations, Biomedical Image Processing & Analysis, Medical Imaging Fundamentals

University of Pennsylvania Full-stack Web Development Coding Boot Camp | Remote   Feb 2023

EXPERIENCE

Life Sciences Analyst | Cognizant | Remote   Aug 2023 – Jun 2024
- Launched LabVantage LIMS at Bayer Crop Science's largest Seed Physiology Lab at Waterman, IL
- Tested product features and 43 different workflows to identify bugs and user pain points
- Created training resources (product pages, user guides) and provided system demos for over 180 end-users. Developed UAT/E2E test plans and coordinated testing sessions with the users 2-3 times a week
- Triaged user feedback and support tickets post-launch to drive creation of user stories
- Hosted onboarding sessions/office hours to transition labs in 11 regions to newer versions of products

Undergraduate Research Assistant | Case Western Reserve University | Cleveland, OH   Jan 2019 – Dec 2021
Advisor: Dr. Satish Viswanath | INVent Lab
- Constructed radiomics-based machine learning model that achieved over 80% accuracy in detecting Crohn's disease and predicting treatment response from diagnostic MRE imaging
- Assessed reproducibility and stability of radiomic textural features from MRI images of healthy brain tissue under varying image acquisition parameters
- Created multiple data visualization scripts in MATLAB to discover trends in patient information, model performance, and radiomic feature expression in order to guide further research
- Automated daily lab tasks (3D Slicer software usage, file type conversions, file naming standardization)

Undergraduate Teaching Assistant | Case Western Reserve University | Cleveland, OH   Aug 2021 – May 2022
- Led weekly recitations and office hours to reinforce programming fundamentals using MATLAB and Arduino as well as assist students with completing labs
- Graded 6 final projects that combined data acquisition, signal processing, and data analysis

SOURCE Research Scholar | Case Western Reserve University | Cleveland, OH   May 2020 – Aug 2020
- 1 of 70 applicants to receive funding through CWRU SOURCE Office to conduct summer research
- Developed machine learning model using QDA classifier on baseline MRE scans to stratify Crohn's disease patients by risk level, predicting necessity and optimal timing for initiating aggressive treatment
- Authored final report and presented findings at CWRU Intersections May 2021

PUBLICATIONS

Abstracts
- Chirra, P., **Muchhala, A.**, et al. (2022). Identifying radiomic features associated with disease activity, patient outcomes, and serum phenotypes in pediatric Crohn's disease via MRI. *Medical Imaging 2022: Image-Guided Procedures, Robotic Interventions, and Modeling*, *12034*, 186–192. https://doi.org/10.1117/12.2613599

- Kurowski, J. A., **Muchhala, A.**, et al. (2021). S1287 Radiomic Features on Baseline Magnetic Resonance Enterography Are Prognostic of Disease Severity in Pediatric Crohn's Disease. *The American Journal of Gastroenterology*, *116*, S592. https://doi.org/10.14309/01.ajg.0000778680.69924.91

- Chirra, P., Rizk, A., **Muchhala, A.**, et al. (2020). Mo1172 A RADIOMICS MACHINE LEARNING PREDICTOR CAN REPRODUCIBLY DIAGNOSE ACTIVE TERMINAL ILEAL CROHN'S DISEASE PATIENTS ON CT ENTEROGRAPHY SCANS ACROSS VARIATIONS IN DOSE STRENGTHS. *Gastroenterology*, *158*, S-812. https://doi.org/10.1016/S0016-5085(20)32713-X

Journal Paper
- Eck, B., Chirra, P. V., **Muchhala, A.**, et al. (2021). Prospective Evaluation of Repeatability and Robustness of Radiomic Descriptors in Healthy Brain Tissue Regions In Vivo Across Systematic Variations in T2-Weighted Magnetic Resonance Imaging Acquisition Parameters. *Journal of Magnetic Resonance Imaging, 54*(3), 1009–1021. https://doi.org/10.1002/jmri.27635

HONORS AND AWARDS

The Gheorghe and Claudia Mateescu Award for Research in Imaging   May 2022
- Award given annually to a graduating senior BME student who has outstanding research contribution in the area of biomedical imaging

Case Alumni Association Junior/Senior Scholarship   Apr 2021
- Merit-based tuition scholarship for excellence in an engineering major

SOURCE Summer Research Scholarship   May 2020
- Grant of $3,500 provided by Bruce Rakay Summer Research Fellowship to support summer research

TECHNICAL SKILLS

JavaScript, React.js, Node.js, Express.js, Java, Python, MySQL, MongoDB, GraphQL, HTML, CSS, MATLAB, Git/GitHub, Azure DevOps, LabVantage LIMS, 3D Slicer Software

LINKS

LinkedIn: https://www.linkedin.com/in/avanimuchhala
GitHub: https://github.com/AvaniMuchhala
Portfolio: https://avanimuchhala.github.io/my-react-portfolio