Veeru Senthil

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Education

University of Wisconsin-Madison — Madison, WI
Bachelor of Science in Computer Science and Statistics — *Expected Graduation: May 2027*

South Fayette High School — McDonald, PA
Highest Honor Roll — *Aug. 2020 – June 2024*

- **Activities**: First Robotics Competition (President), Teen Advisory Board & Library Volunteering (President), Varsity Basketball & Track, Technology Student Association (Vice President), STEM Club (Chair Member), NHS

Experience

Computational Neuroimaging Research Assistant — August 2024 - Present
UW-Madison's Molecular Imaging/Magnetic Resonance Technology Lab — *Madison, WI*

- Developed deep learning models for image reconstruction, automatic segmentation, and quantitative analysis of over 20,000 human brain tumor MRI Scans, integrating nnU-Net and PyTorch resulting in a 32% improvement in segmentation accuracy
- Optimized convolutional neural networks (CNNs) and transformer-based architectures to enhance tumor detection and classification, achieving a 16% reduction in processing time while maintaining a 96% diagnostic accuracy rate

Software Engineering Intern — Summer 2022, Summer 2023
Inpleo — *Pittsburgh, PA*

- Developed machine learning models for pattern detection and predictive analytics on financial and procurement datasets on financial and procurement datasets spanning 700k+ transactions across six clients, including two Fortune 500 companies, extracting actionable insights that optimized cost efficiency and procurement strategies
- Led development of the Vendor-Roll project, leveraging PyTorch and PostgreSQL to automate vendor management workflows, enabling real-time, data-driven decision-making with 98.6% accuracy

Lead Sales and Technology Director — Sept. 2023 – May 2024
South Fayette Mini-THON — *Pittsburgh*

- Managed a team of 32 students to raise a national record of $338,205 for pediatric cancer treatment
- Secured $102k in sponsorships from local businesses through strategic outreach and negotiation
- Boosted website engagement by 47% and developed a live sponsorship dashboard using React.js and Flask, allowing team to track fundraising progress and sponsorship data instantly, improving decision-making

STEM Ambassador — April 2022 – Aug. 2022
Boys and Girls Club — *Pittsburgh, PA*

- Designed and taught STEM lessons to 70 children (ages 4-13), fostering curiosity in coding, robotics, & science

Projects

Neurostride | *Lead Programmer* - Team of 3 — Aug. 2023 – Present

- Designed and developed an ML-driven knee compression sleeve that utilizes multi-modal sensor fusion—combining accelerometers, gyroscopes, and EMG signals to detect Drop Foot episodes in real time for individuals with Multiple Sclerosis, reducing fall risk by ∼85%.
- Developed a predictive motion algorithm that analyzes gait patterns to anticipate drop foot and preemptively detect gait irregularities, enabling precise walk phase detection, optimizing neuromuscular stimulation timing, and reducing unnecessary impulses by ∼75%

p53 Acetylation Predictive Biological Model | *Collaboration with team at CMU (PA)* — Dec. 2022 – May 2023

- Developed an TensorFlow-based predictive model to simulate p53 acetylation dynamics, leveraging stochastic and deterministic techniques to enhance biological pathway simulations and enable high-fidelity predictions of cellular responses to oncogenic stimuli
- Designed and implemented a BioNetGen-powered computational framework to model molecular interactions and phosphorylation cascades, visualizing transcriptional regulation and apoptotic thresholds with precision

Technical Skills

Languages: Java, Python, R, SQL, PostgreSQL, Javascript, HTML/CSS
Tools : PyTorch, TensorFlow, React.js, Flask, AWS, Scikit Learn, Keras, nnU-Net, Git, Pandas, Docker, FastAPI
Other Interests: Basketball, Chess, Poker, Hiking, Star Wars, Finance, Fantasy Football, LEGOs, Crypto, Neuroscience