Sriram Vijendran

Personal Webpage | GitHub | Publications

Education

Iowa State University — Ames, IA
Ph.D. in Computer Science — *Jan. 2021 – Present*

SRM Institute of Science and Technology — Chennai, India
Bachelors in Electronics Engineering — *Aug. 2016 – May 2020*

Experience

Graduate Research Assistant — August 2024 – Present
Iowa State University — *Ames, IA*

- Designed a novel metagenomic analysis software for edge-devices
- Implemented an efficient string indexes in Rust for approximate pattern matching
- Implemented an Expectation-Maximization algorithms to estimate population proportions
- Designed Phylo-rs, the first comprehensive crate for phylogenetic analysis in Rust
- Implemented WASM compatible datastructures for the deployment of advanced algorithms on the Web

Research Intern — Aug. 2023 – Aug. 2024
ORISE, USDA-ARS — *Ames, IA*

- Developed advanced AI models to identify infections in histological samples
- Designed Bayesian Deep Learning models for segmentation of Whole-Slide images
- Deployed an Active Learning algorithm to optimize sample selection and training time of large-scale image segmentation models

Undergraduate Research Intern — Nov. 2019 – Nov. 2020
Robert Bosch Center for Data Science and Artificial Intelligence — *Chennai, India*

- Developed a novel Neural Network model for 3D brain tumor segemntation
- Explored the distributed deployment of large models in hospitals

Projects

Phylo-rs | *Rust, WASM* — Aug. 2023 – Present

- Developed Phylo-rs: Rust phylogenetic library with WebAssembly support
- Implemented phylogenetic algorithms including SPR and diversity metrics
- Built extensible Rust framework for memory-safe phylogenetic inference

SmartHisto | *Python, Computer Vision, PyTorch* — Aug. 2021 – Dec. 2023

- Developed an Active Learning framework to train Bayesian neural networks in image segmentation
- Implemented efficient methods to read and analyze whole-slide images

Technical Skills

Languages: Rust, Python, C/C++, JavaScript, HTML/CSS
Frameworks: Flask, Material-UI
Developer Tools: Git, Docker, Vim, TravisCI, VS Code
Libraries: PyTorch, TensorFlow, pandas, NumPy, Matplotlib, Rust-bio